IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of	)	Group Art Unit: 1771
	)	
Daniel H. Katsin	)	Examiner: Befumo, Jenna Leigh
	)	
Application No. 10/672,978	)	**RULE 132 DECLARATION OF DR.**
	)	**DONALD B. THOMPSON CONCERNING**
Filing Date: September 27,2003	)	**COMPARATIVE TESTING**
	)	
For: ENGINEERED TOWELING	)	
	)	

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

CERTIFICATE OF MAILING UNDER 37 CFR 1.8

I hereby certify that this correspondence is being mailed to the Patent and Trademark Office on this date Jan 29, 2007 addressed to: Commissioner for Patents, PO Box 1450, Alexandria, VA 22313-1450.

By: [signature]
Fern Marder

1. I am a Professor in the College of Textiles at North Carolina State University. My Curriculum Vitae is attached hereto as Exhibit A. I have participated in testing concerning certain materials that are relevant to the above-encaptioned patent application. Another member of the College of Textiles faculty, Dr. B.S. Gupta was also involved in the experiments and analyses reported here. Dr. Gupta's Curriculm Vitae is attached hereto as Exhibit B.

2. The testing performed at the North Carolina State University College of Textiles closely examined the structure of the split PET/nylon microfiber used to make the yarns and fabrics used by Tactix Toweling (assignee of the present patent application) to make an absorbent wipe. The new material was compared to similar PET and PET/nylon control yarns for differences in fine structure, using Scanning Electron Microscopy and other laboratory techniques.

3. One comparison yarn was a PET yarn. It was found to be a relatively fine yarn of approximately 10 microns (0.000010 m) in diameter. The yarn was PET found to be 156 grams/denier, or about 3.8 grams/denier/filament.

4. The second comparison yarn was the PET/nylon with a linear density of 98.2 grams/denier. The PET/nylon blend yarn was about 0.000014 m in diameter, and the fibers were about 9 grams/denier/filament.

5. The two comparison yarns were of a construction and shape that would provide good comparisons for the new yarn. The materials were similar (the blend is about 75% by weight PET) and the unsplit blend composition was the same as that of the split PET/nylon blend. The deniers of individual fibers in the split yarn varied significantly, due to the irregular shapes, and the many distortions produced by the mechanical separation process. The split fibers may be estimated to vary from about 2 dpf to 7 or 8 dpf.

6. There have been many investigations of factors that may influence the sorption capacity and transport rate for water moving through fabrics. For many years, it had been believed that the sorption of water into the fiber was the most important characteristic that would promote movement of water through fabrics. While the ability to absorb water into a fiber can provide high absorption capacities, the water can be held tenaciously, making it difficult to remove moisture by drying/evaporation or by wringing/squeezing out moisture (1)(A listing of the cited references is attached hereto as Exhibit C.)

7. It has become apparent in recent years that the fiber, yarn and fabric structure can be a very valuable tool in creating structures that have rapid water uptake and high capacities. Although polypropylene (PP) and polyester (PET) polymers have very low moisture sorption, many fabrics have been made from PP/PET that have high uptake rates and capacities. One of the important factors is fabric structure and porosity (2, 3). Indeed, many studies have modeled moisture transport using analysis of transport in porous media (4-8), taking into account the role

of fiber/moisture affinity, surface modifications, pore size and shape, and the interconnectedness of pore structures.

8. The role of fiber geometry, grooves and the like, in creating capillarity for enhanced movement of moisture through fabrics has received increased attention in recent years (9). Indeed, fiber manufacturers and researchers such as Tennessee Eastman, Clemson University, and Proctor and Gamble have devoted extensive efforts to creating complex fiber structures with very complex shapes to create fine grooves and microchannels (10,11). PET and PP yarns made from these fibers have been shown to have high transport, driven by the capillary action of created by the channels.

9. A preferred, alternative means of producing highly variable fiber shapes and surfaces is the subject of the invention of the Tactix fiber. Rather than using the spinning approaches of the fibers identified above, the fibers that are the subject of the invention produce highly irregular, grooved fibers by mechanically separating a cospun fiber composed of PET/nylon blends. Other poorly miscible polymers could be used to produce similar structures. The mechanically-separated fibers are found to have very irregular shapes and to have pitting, microgroves, pores and other surface irregularities. (Exhibit D1-D19.) Yarns made from these yarns consequently have many fine channels and pores that can promote the transport of water through the yarns as a result of capillary sorption and transport.

Comparisons to Similar Yarns

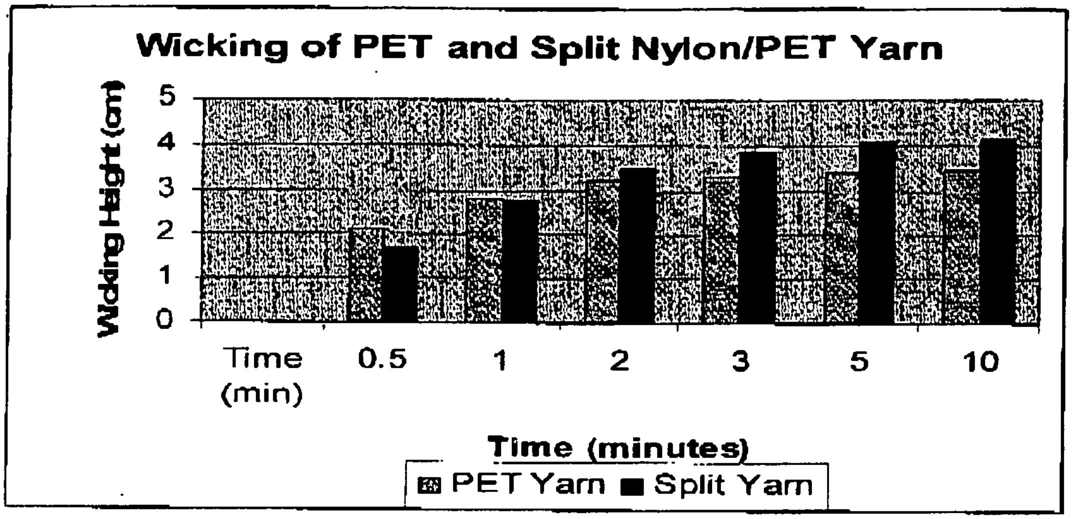
10. A sample of a PET/nylon blend fiber, of identical polymer composition, but not mechanically separated, and a sample of the split PET/nylon were analyzed at the North Carolina State University College of Textiles. The intact PET/nylon yarn was found to have a denier of about 6.7 grams/denier per filament, the split yarn had a denier of about 2-4 grams/denier/filament; and a PET comparative yarn had a denier of about 3.8 grams per denier per filament.

11. Both the PET and PET/nylon intact (unsplit) fibers were found to be circular cylinders in shape. This was confirmed by both longitudinal Scanning Electron Micrographs and by etched, cross sectional views. (Exhibit E1-E24.) The fibers from split PET/nylon fiber were quite different from the two comparisons. The split fibers were highly varied in shape and size. They ranged from relatively flat, ribbon-like structures, to grooved, irregular elongated ovals, to highly irregular trianglular, oval or distorted circular shapes. These highly irregular shapes provide many grooves and pits in the fiber surface, and the yarns will pack closely. The resulting yarns and fabrics would be expected to have high porosity and many channels to create capillarity for moving water through the structures.

12. Laboratory test results comparing the water transport of the PET/nylon to the split PET/nylon showed that the water flow rate for the split yarn fabric was twice that of the intact PET/nylon fabric. The difference can be attributed to the difference in the fine structure of the fibers and yarns.

Wicking Results for PET and Split Nylon/PET Yarns

13. Samples of PET yarn and Nylon/PET split yarns, comparable to those described above, were tested for wicking. The yarns, as received, had no twist or heat setting. Ten specimens of each yarn, 10 inches in length, were given 100 twists, or 10 twists/inch (tpi) on a laboratory hand twister. The twisted yarns were then heat set for 30 minutes at 160 degrees C in a preheated laboratory oven. After heat setting, the samples were permitted to equilibrate in the laboratory for 36 hours (21 degrees C ± 3 degrees C, and 65% RH ± 10% RH). Five samples of each yarn type were then tested for wicking, by immersing the base of the yarn in a water reservoir and measuring the rate of rise in the water column resulting from wicking. The results are shown in the figure below:



Neither the PET yarn nor the split yarn had a wicking finish, and both fiber types were around 2.5-5 denier per filament. The split fiber yarn clearly outperformed PET in moisture transport. This was demonstrated by performing wicking tests of yarns made from the fibers (See Figure). The wicking rate of the split fiber was 120% of the PET; and it was also 225% of the unsplit Nylon/PET. The flat yarns were twisted (10 tpi) and heat set before the wicking test. Neither fiber had wicking finish applied, so the enhancement may be attributed to the difference in the fine structure in the split fibers. The grooves, irregularities and surface pitting in the split yarn provides a greater opportunity for capillarity to promote water transport.

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment or both, under Section 1001 of Title 18, U.S.C. and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

Dated: January 29, 2007

Don B. Thompson, Ph. D.
Don B. Thompson, Ph. D.

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San Francisco, California 94111
(415) 705-6377

Attorney Docket No. 602.06

NC STATE UNIVERSITY College of Textiles

Dr. Donald B. Thompson

Most Recent Publications:

1 Thompson, D.. (1977, November). Synthesis and properties of novel segmented . polyurethanes. *Southeastern Regional Meeting of the American Chemical Society*

List All Publications

Research Interests:

Monsanto (1974-1983): Fiber spinning, polymer synthesis,static control yarns, melt rheology, process development for melt, solution and continuous spinning; gas separations technology (solution theory, transport processes, effect of contaminents on separation efficiency and high pressure stability of hollow fibers. BASF (1983-1985): Coated and bicomponent antistatic yarn development, thermal analysis, microscopic and xray analysis of PET fiber, solution rheology. Schering-Plough (1985-1998: Personal

Exhibit A1

research in polyurethane foams and processes to make molded insoles; injection molding; design of insoles based on biomechanical principles; directed group that was responsible for all insole products, textile coverings and digital of Dr. Scholl's product line, as well as laboratory and human testing insole performance. Textile Protection and Comfort Center (1998-present): Testing protective and high performance garments and equipement for comfort, function and protection; testing/certification standards development; respirator filter performance research; human comfort and physiological testing.

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Education:
NCSU: Ph.D. Fiber and Polymer Science B.S. Chemistry B.S. Textile Chemistry

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Organizations:
American Assoc. of Textile Chemists and Colorists American Chemical Society/Polymer Division Memphis Society of Biomechanics (through 1998) Society of Plastics Engineers (through 1998) National Fire Protective Association (Fire Fighter Turnout Committee) Life Plan Trust of North Carolina (Board) American Society for Quality (through 2002) Autism Society of NC and USA

Exhibit A2

NC STATE UNIVERSITY

COLLEGE OF

Textiles

Dr. B.S. Gupta □Professor□TECS□□

Most Recent Publications:

1. Prahsarn, C., & Barker, R.L., & Gupta, B.S.. (2005). Moisture vapor transport behavior of polyester knit fabrics. *Textile Research Journal* , 75 (4) ,346-351.
2. Afshari, M., & Kotek, R., & Gupta, B.S., & Kish, M.H., & Dast, H.N.. (2005). Mechanical and structural properties of melt spun polypropylene / nylon 6 alloy filaments. *Journal of Applied Polymer Science* , 97 ,532-544.
3. Gupta, B.S., Ed.. (2005, June). Friction in textiles.
4. Warner, S., & Gupta, B. S., & King, M., Eds. (2004). Advances in biomedical textiles and healthcare products.
5. Gupta, B.S., & Sehgal, K.C.. (2003). Fundamental and prasctical aspects of adhesion in binder and coating applications. *INTC*

Exhibit B1

List All Publications

Courses:

Educational activities have included development and offering of undergraduate and graduate courses that have dealt with physical, mechanical and structural properties of textile materials. Additionally, he has taught the product design courses to the seniors in the Materials Science Program.

□The courses currently offered include:

□TE 201: Textile Engineering Science

□TMS 211: Introduction to Fiber Science

□TMS 761: Mechanical and Rheological Properties of Fibrous Materials

□TMS 762: Physical Properties of Fiber Forming Polymers, Fibers, and Fibrous Structures

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Research Interests:

General research emphasis has been on characterizing, understanding and modeling structural, physical and mechanical properties of fibers and fibrous assemblies. Major areas, in which his research has been focused during the past several years, are as follows:

. Frictional characteristics of fibrous materials: structural model, experimental studies in fibers, yarns and fabrics, surgical sutures, hair fibers, impact on fabric handle. Currently editing the book, Friction in Textiles, Woodhead

Exhibit B2

Publishing, Inc, Cambridge.

- Absorbent structures and absorption phenomena: structural models, test methods, studies involving fibers, fluids and fabric structure as variables, behavior of super-absorbent materials, personal hygiene products, design for optimum performance. Wrote/co-edited the book, Absorbent Technology, Elsevier, Amsterdam, 2002.
- Biomedical textiles: knot security and strength in sutures, secure knot model, tying devices, studies in regular and ophthalmic sutures, preparation of small diameter compliant arterial grafts using weaving technology and both non-degradable and degradable materials, prosthetic ligaments from braided structures, wound dressings using absorbable healing polymers.
- Porosity: structural models for pore size and its distribution in nonwovens and woven/knitted fabrics, experimental methods, impact on absorbency and fabric comfort.
- Surface energetics: dynamic contact angle device, advancing and receding contact angles, polar and non-polar energies, work of adhesion, experimental studies in cellulosic and non-cellulosic fibers and films.

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Education:

Technological Inst. of Textiles,
Haryana, India B. Sc (Text) 1958 Textile
Technology

Exhbt B3

University of Manchester Inst. of
Sci. and Tech, England Ph.D 1963 Textile
Physics

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Organizations:

Exchange Scientist, N. C. State Univ., 1963-1966
Fellow, Textile Institute, 1977
Best Paper Award, Society of Cosmetic Chemists, 1984
Fulbright Lecture Award to Fiber and Textile Institutes, India, May - August, 1985
Steering Committee, Technical Association of Pulp and Paper Ind., 1989
Best Paper Award, Quality Assurance, Nonwovens Conference, TAPPI, 1994
TAPPI Nonwovens Division Technical Award and Mark Hollingsworth Prize, 2004

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Biography:

Born and raised in Delhi, India, he completed his high school from the Punjab University and I.SC. from the Uttar Pradesh University. He pursued Bachelor of Science in Textile Technology from the Technological Institute of Textiles of the Punjab University. He joined the Delhi Cloth Mills as a trainee and then

Exhibit B4

served as a supervisor at the Modi Textile Mills. For graduate education, he proceeded to the University of Manchester Institute of Science and Technology, Manchester, England, and completed his Ph. D. degree in Textile Physics under the direction of Professor J. W. S. Hearle. He came to the College of Textiles, North Carolina State University, Raleigh, North Carolina, USA, as a visiting scientist. He was offered a faculty position and is currently serving as a professor in the Department of Textile Engineering, Chemistry, and Science. During the summer of 1985, he received a Fullbright Professorship grant to lecture at the Indian Institute of Technology, New Delhi, and The Maharaja Sayajirao University, Vadodra, India. During 1983 to 1997, he served as the Associate Head of the Textile Materials Science and the Textile Engineering, Chemistry, and Science Departments.

Exhibit B5

References

1. Yasuda, T.; Miyama, M.; and Yaduda, H. "Dynamic water vapor and heat transport through layered fabrics. Part II. Effects of the chemical nature of fibers." *Textile Research Journal,* 62 (4), April, 1992, p. 227-235.
2. Prahsarn, C.; Barker, R.L.; and Gupta, B. S. "Moisture vapor transport behavior of polyester knit fabrics." *Textile Research Journal,* 75 (4), April, 2005, p. 346-351.
3. Shyr, Tien-Wei, Yang; Shun-Tung; Jou, Chi-Hsuing; and Yao, Shin0Chuan.*World Conference of the Textile Institute, Proceedings,* v.2, *Nieches in the World of Textiles,*1997, p. 376-378.
4. Harper, R. J. Jr.; Bruno, J.S.; Blanchard, E.J.; and Gautreaus, G.A. "Moisture-related Properties of Cotton-Polyester Fabrics," *Textile Research Journal*, 46 (2), February, 1976, p.82-90.
5. Liu, L.; and Liu, M. "Effect of fabric surface properties on moisture transport properties." *Qingdao Daxue Xuebao (Gonghheng Jishuban)/Journal of Qingdao University (Engineering Technology Division),* 16 (2), June, 2001, p. 24-27.
6. Ghali, K.; Jones, B.; And Tracy, J. "Modeling moisture transfer in fabrics." *Experimental Thermal and Fluid Science*, 9 (3), Oct. 1994, p. 330-336.
7. Haghi, A.K. "Transport phenomena in porous media: A review." *Theoretical Foundations in Chemical Engineering*, 40 (1), January, 2006, p. 14-26.
8. Nguyen, H.V.; and Durso, D.F. "Absorption of water by fiber webs; and illustration of diffusion transport." *Tappi Journal,* 66 (12), December, 1983, p. 76-79.
9. Matsudaira, M.; and Kondo, Y. "Effect of a grooved hollow in a fiber on fabric moisture and heat transport properties." *Journal of the Textile Institute, Part 1: Fiber Science and Textile Technology*, 87 (3), 1996, p. 409-416.
10. Vaughn, Edward A.; and Carman, Breng G. "Expanded Surface Area Fibers: A Means for Medical Product Enhancement." *Journal of Industrial Textiles,* 30 (4), April, 2001, p. 303-310.
11. Goswami, B. C.; and Ellison, M. S., "New capillary surface fibers." *Man-Made Fiber Year Book*, August, 2002, p. 34-38.

Exhibit C1

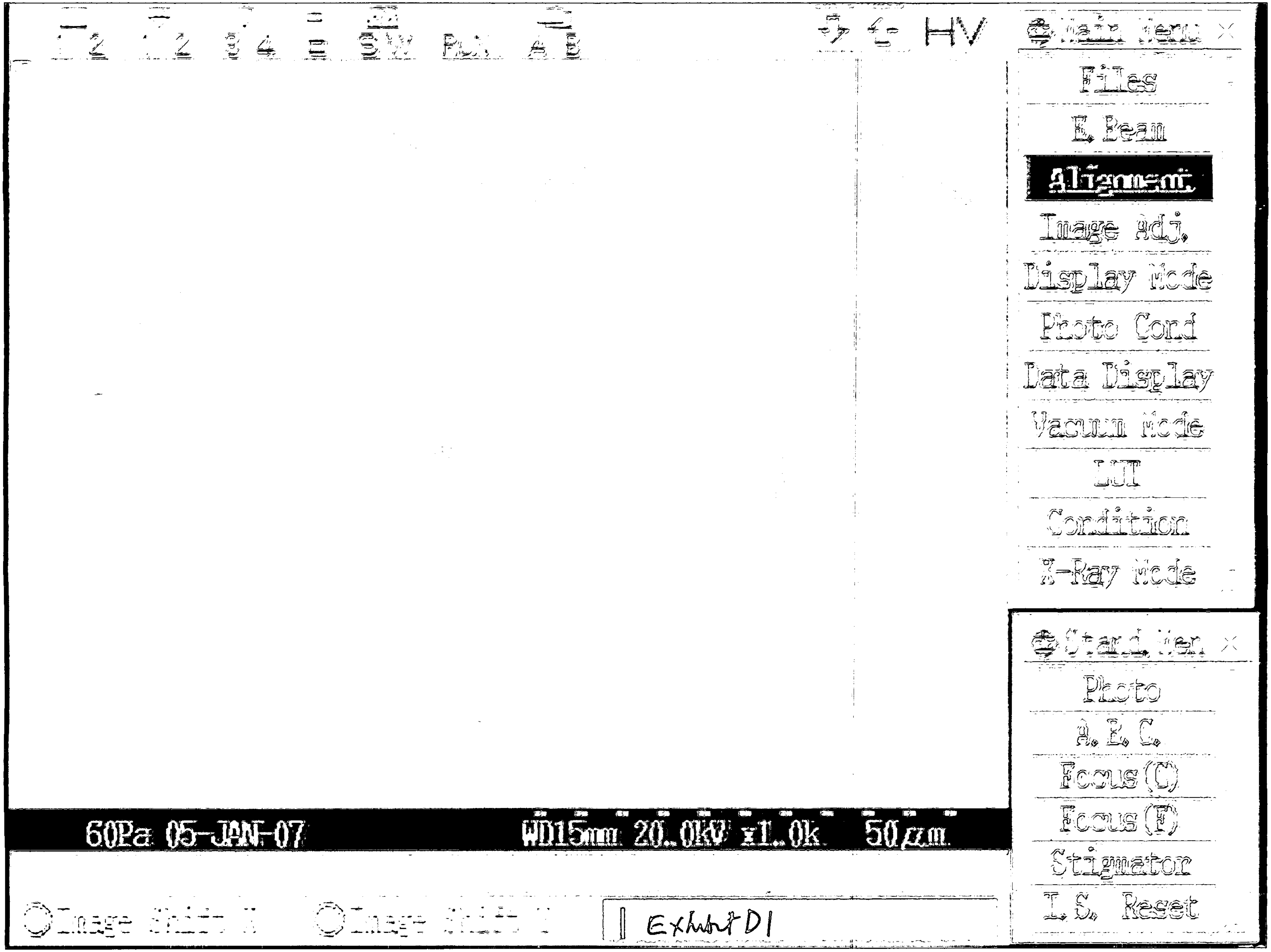
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Exhibit D2


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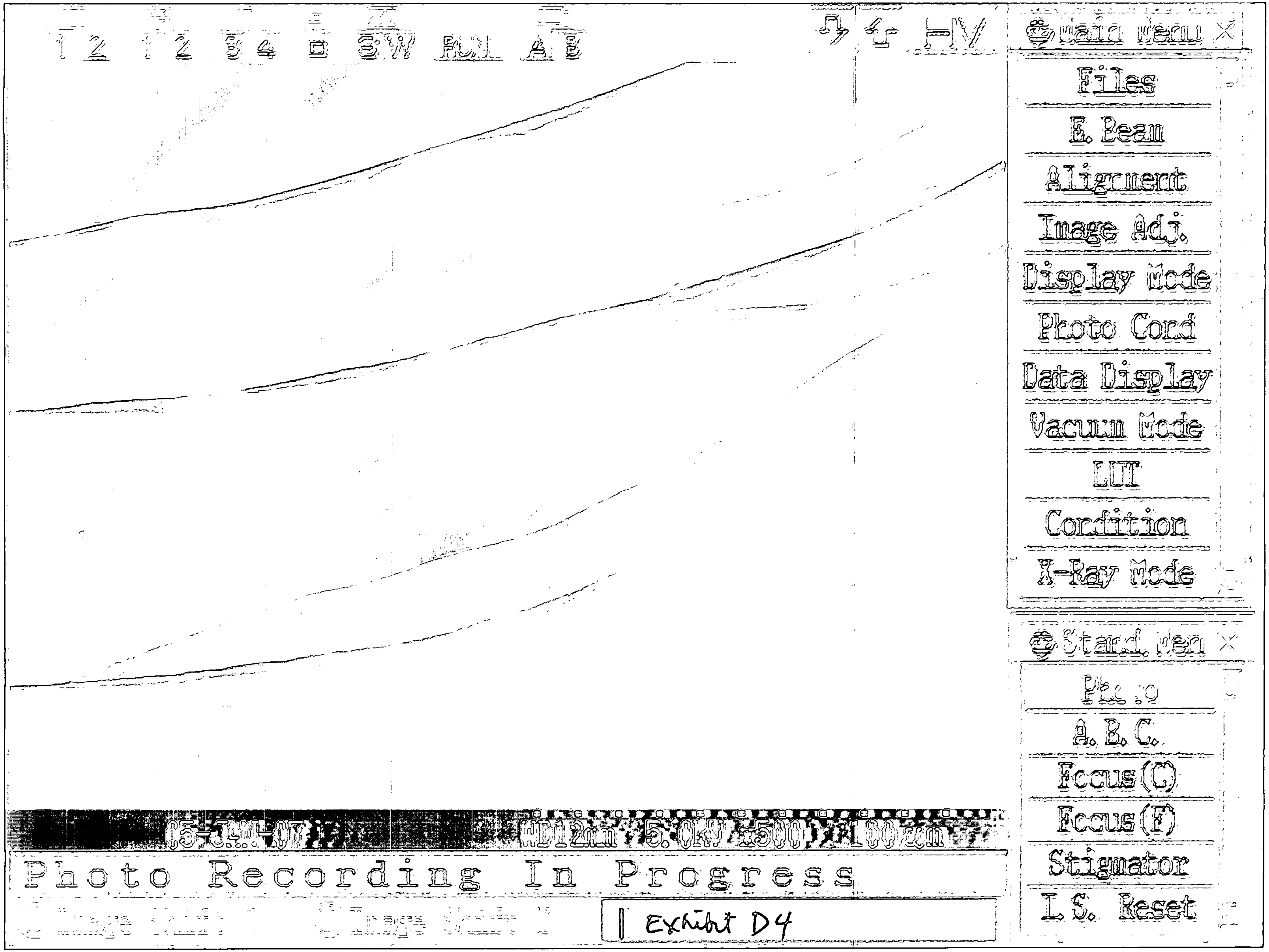

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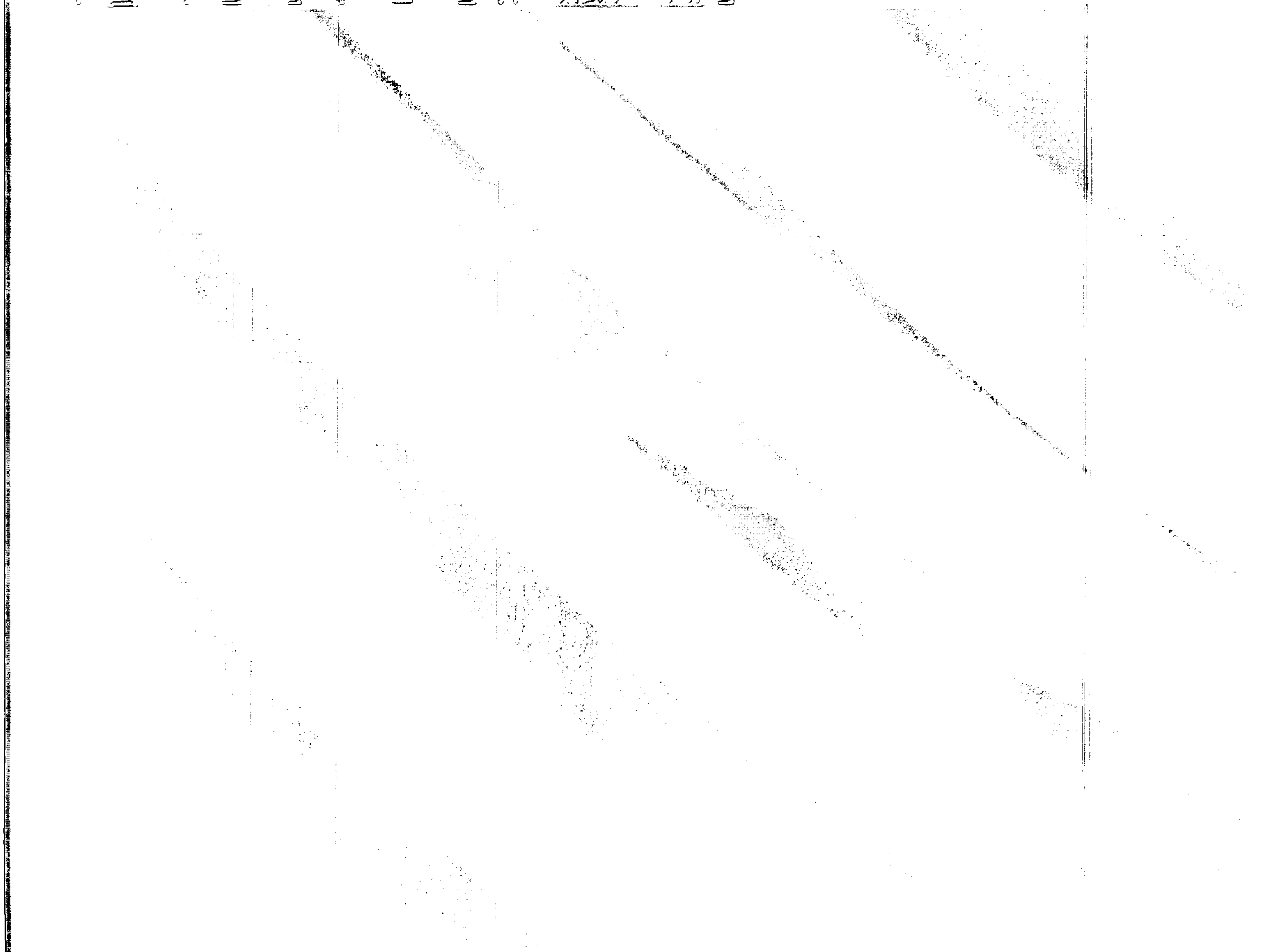

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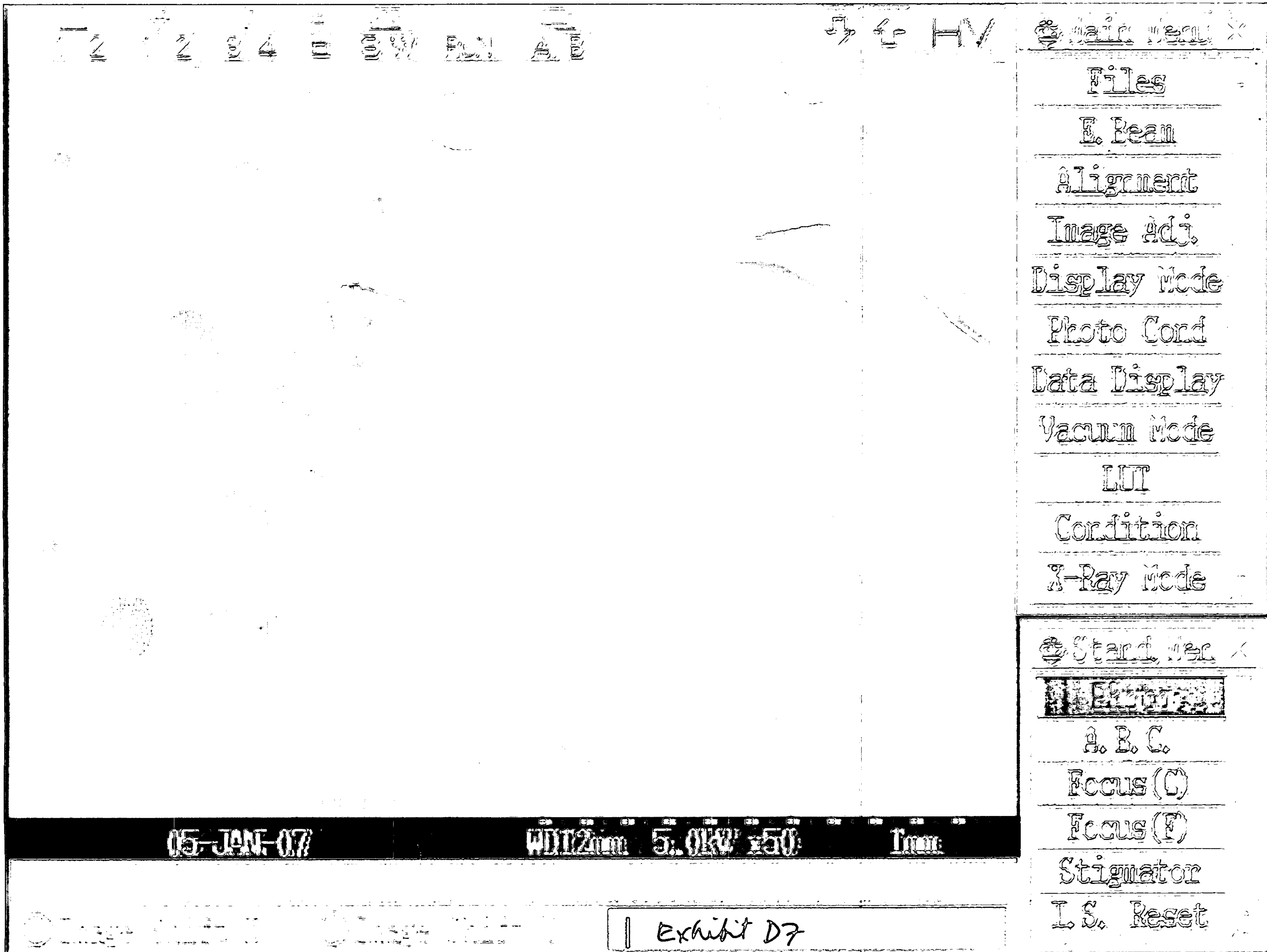
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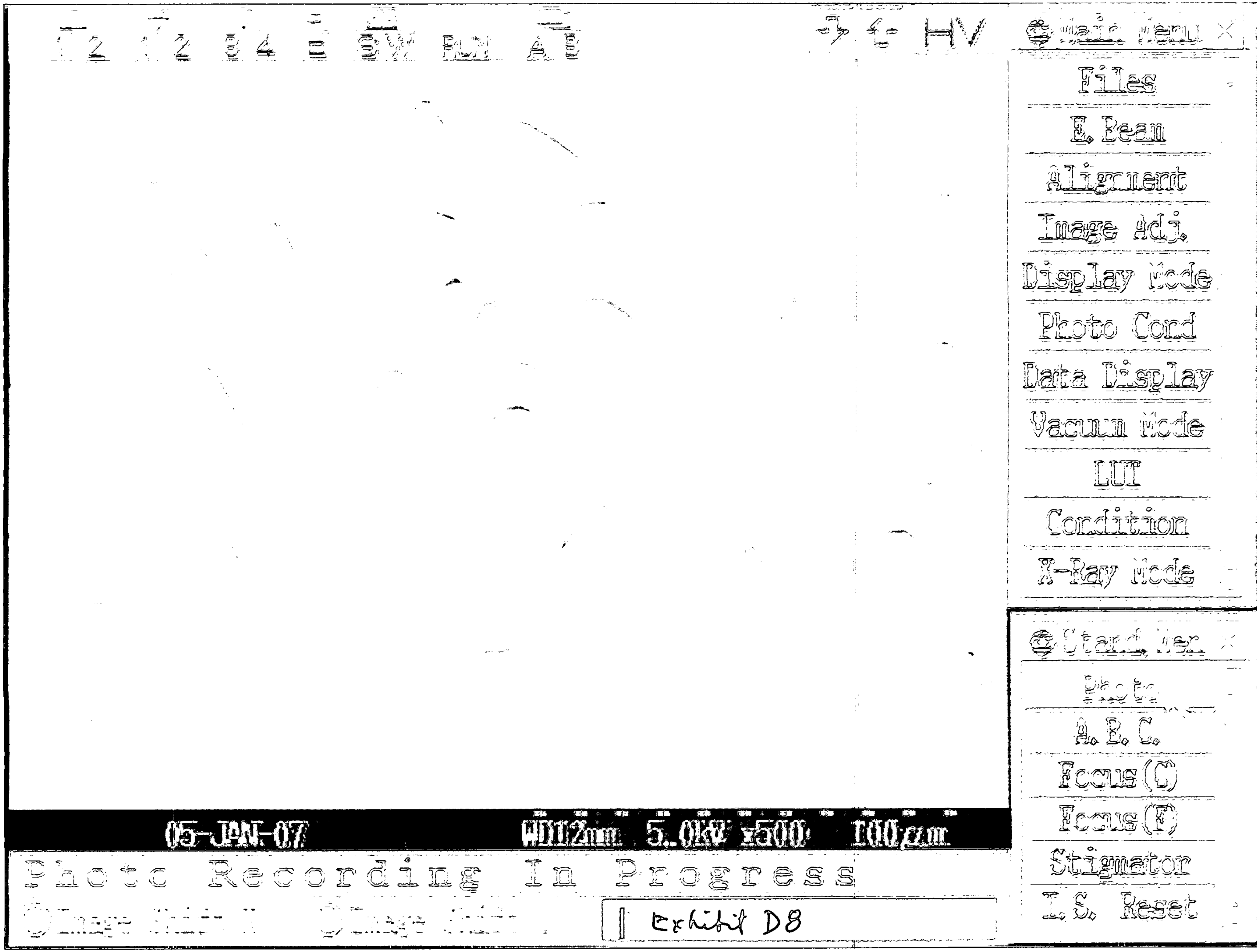
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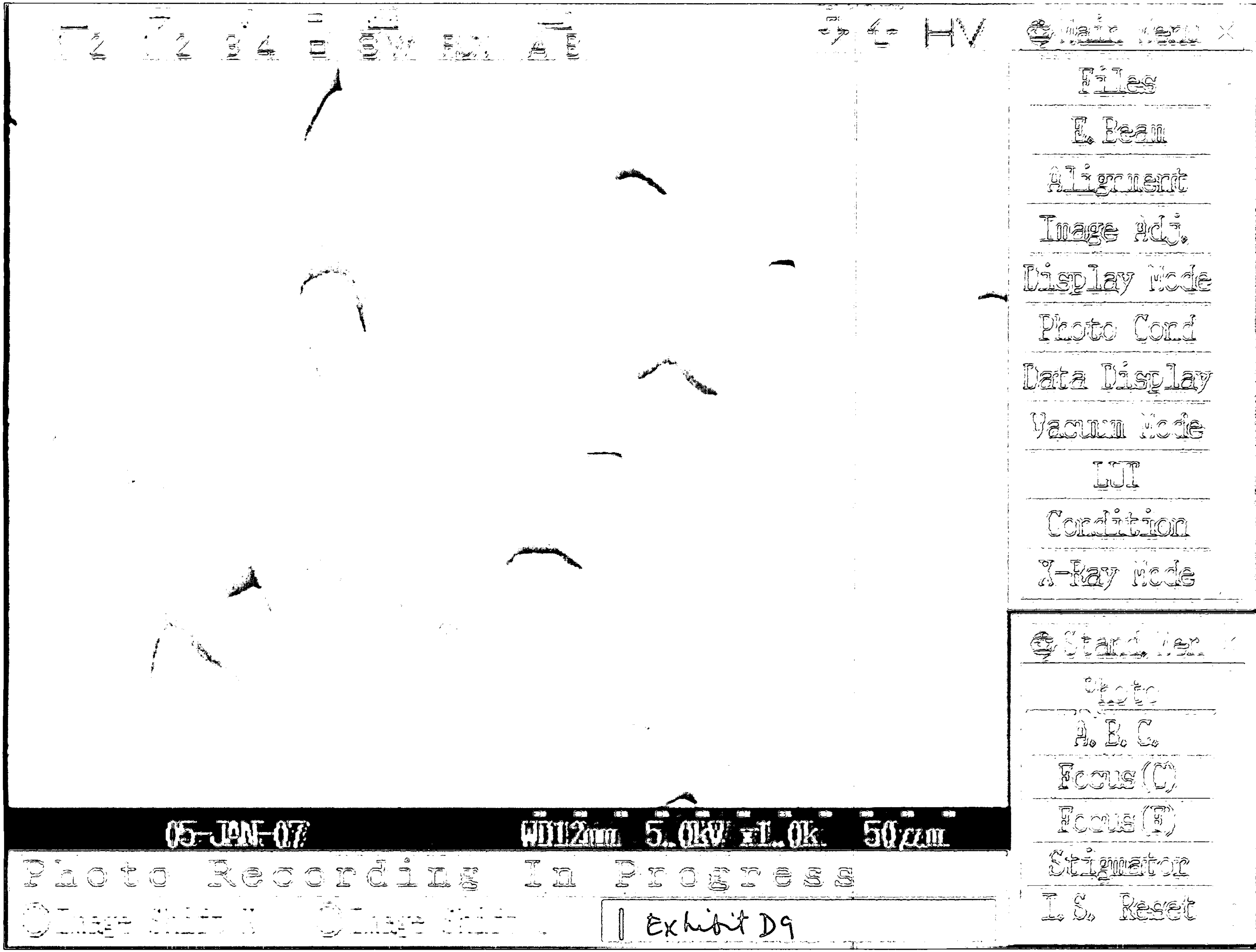
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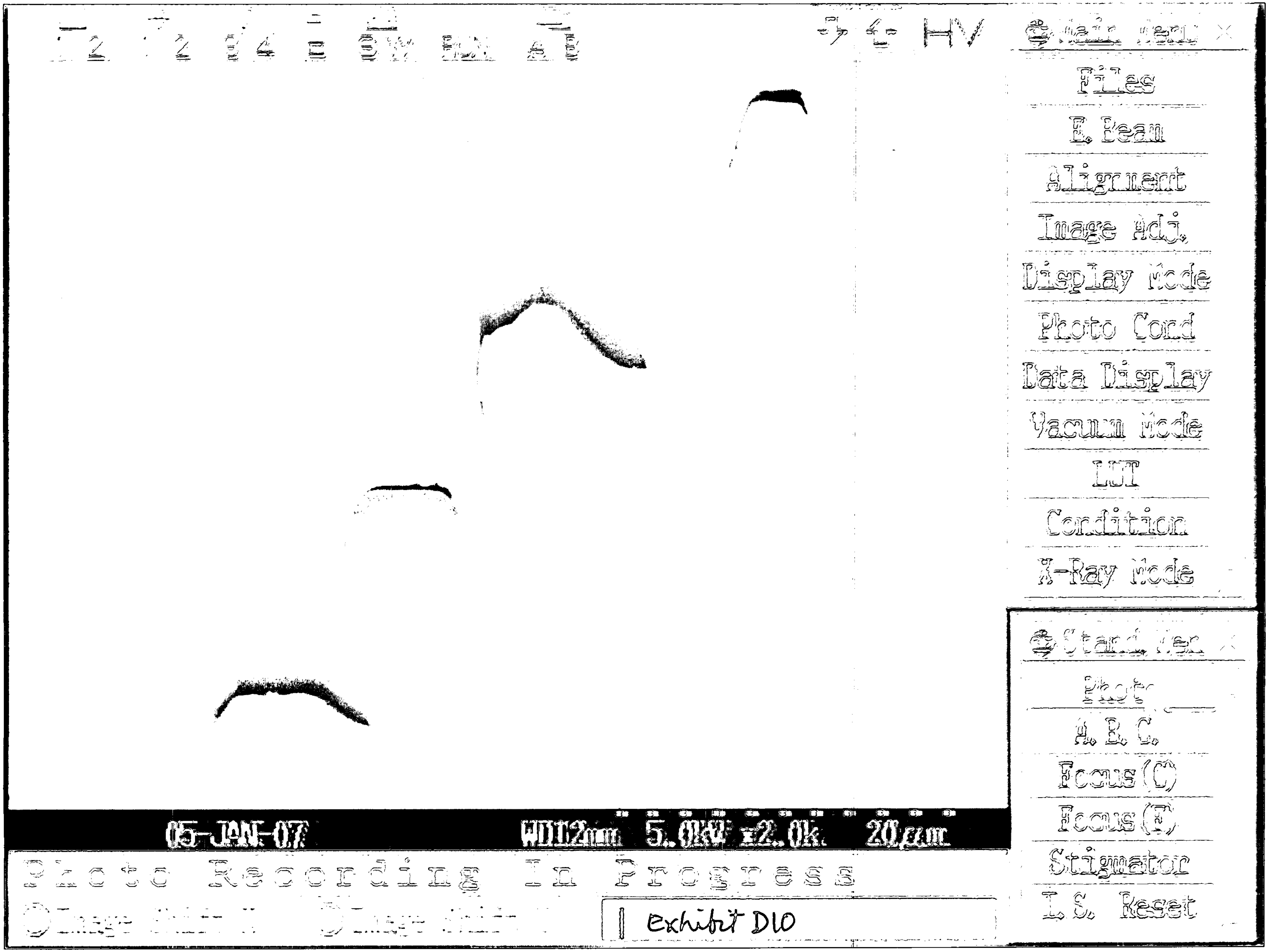
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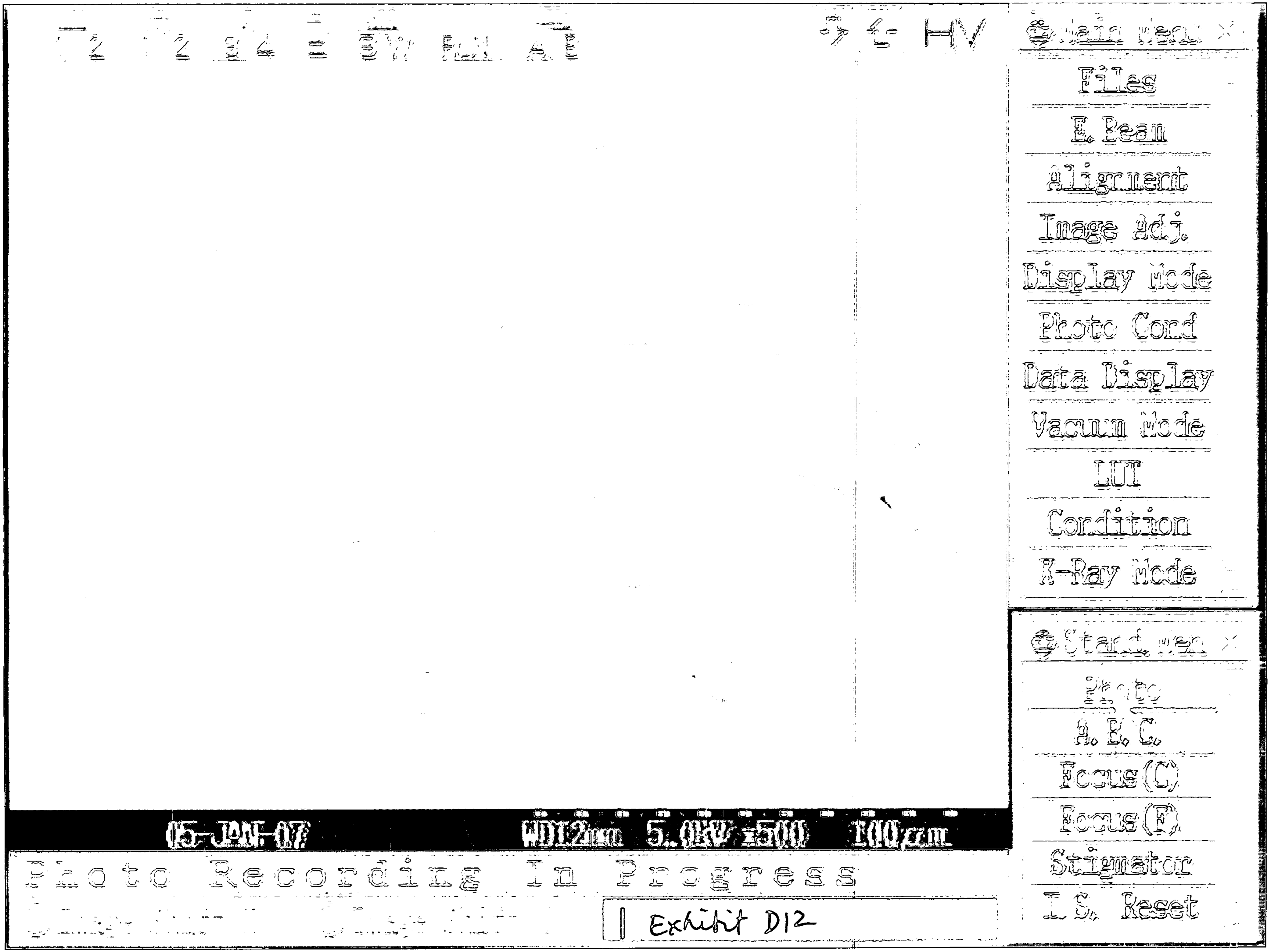
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Exhibit D12

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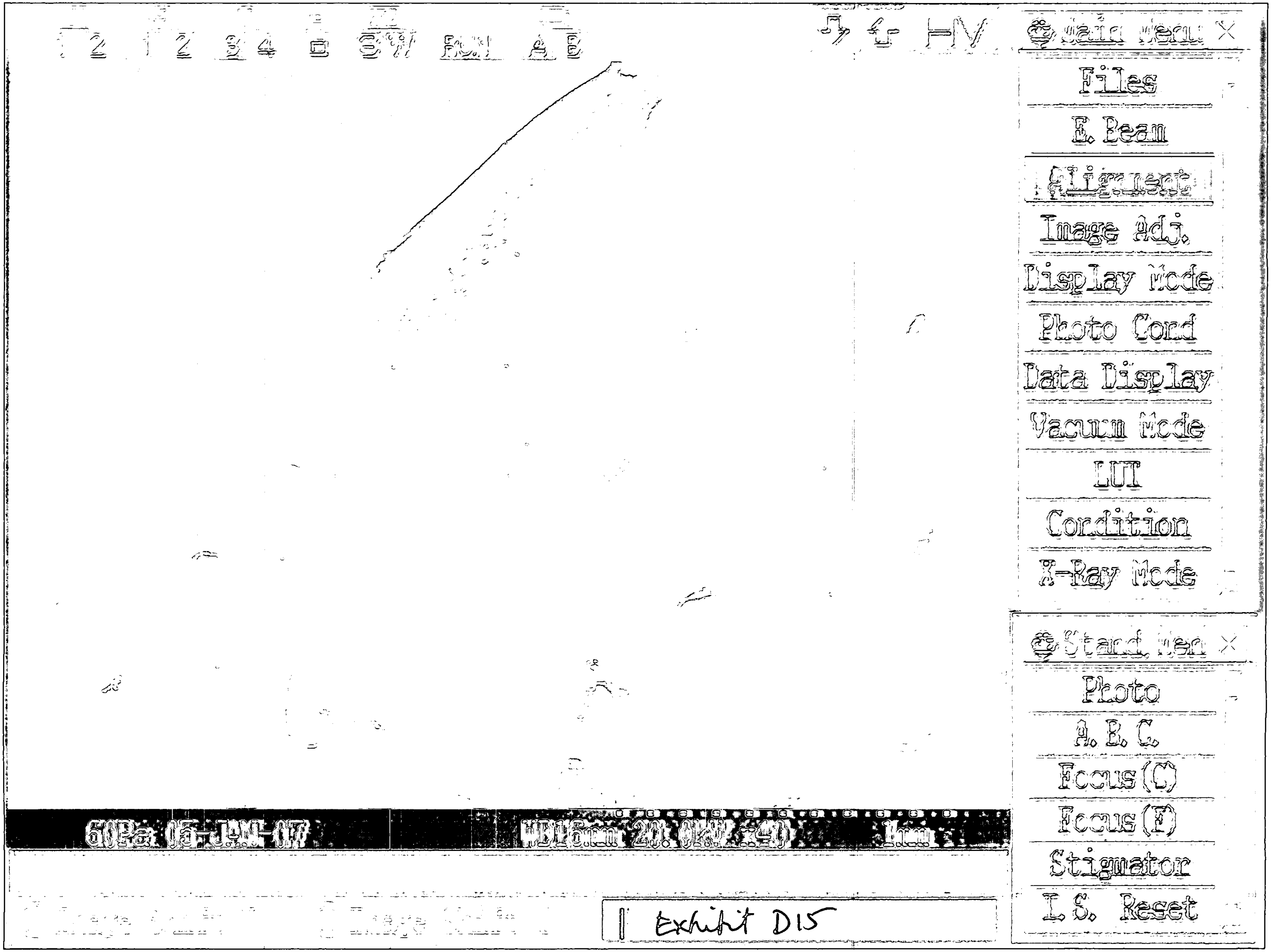
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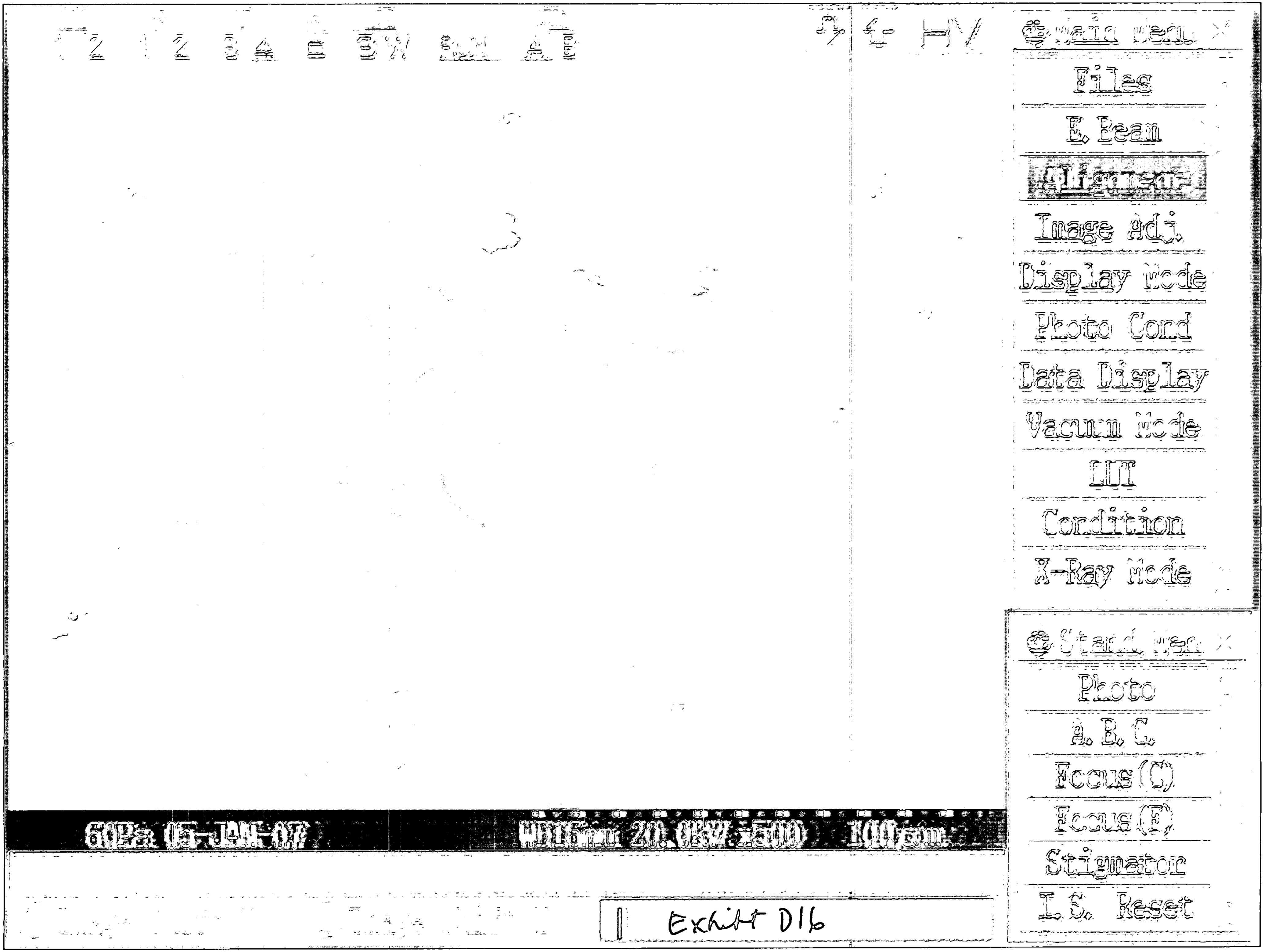
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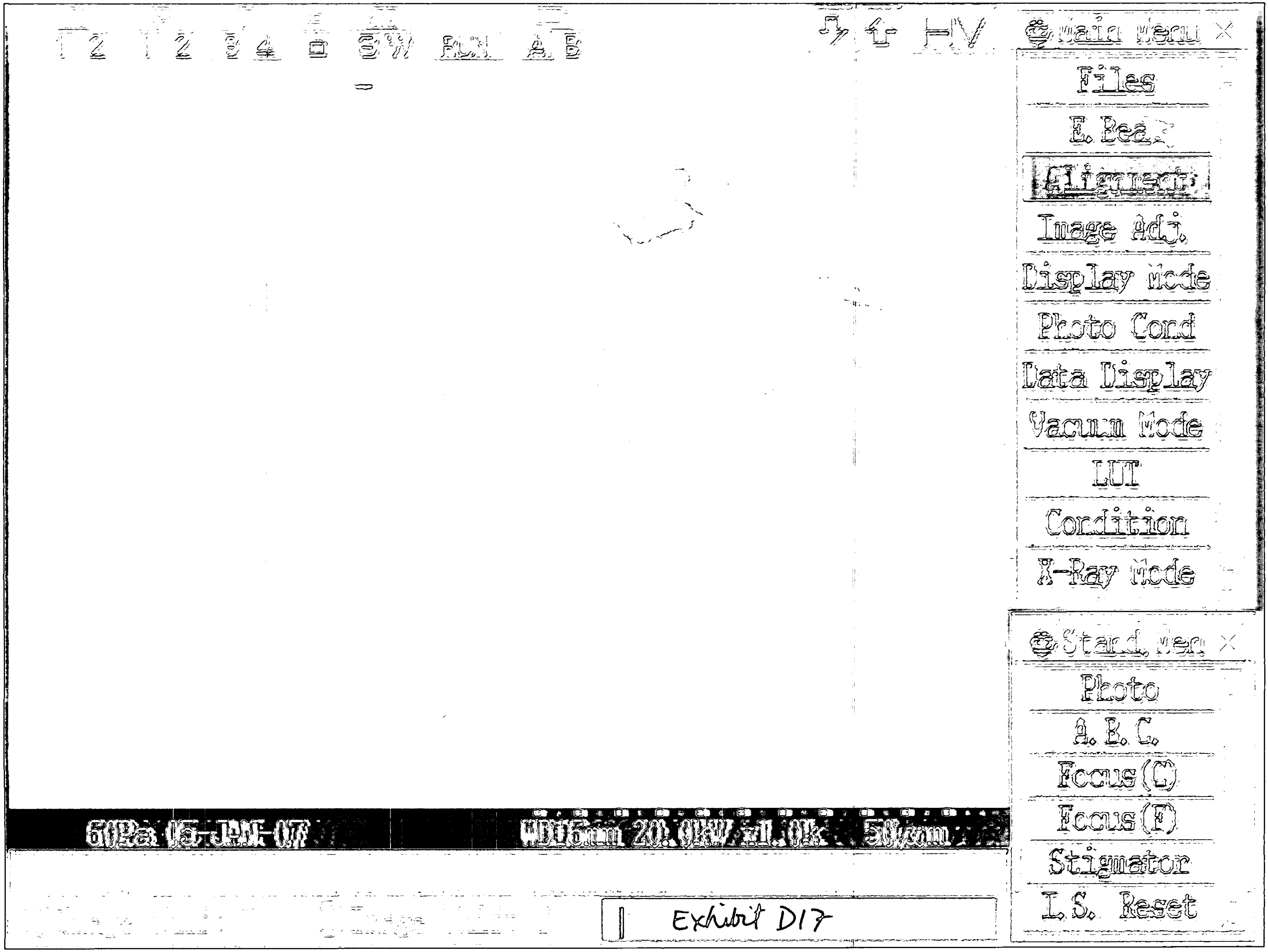
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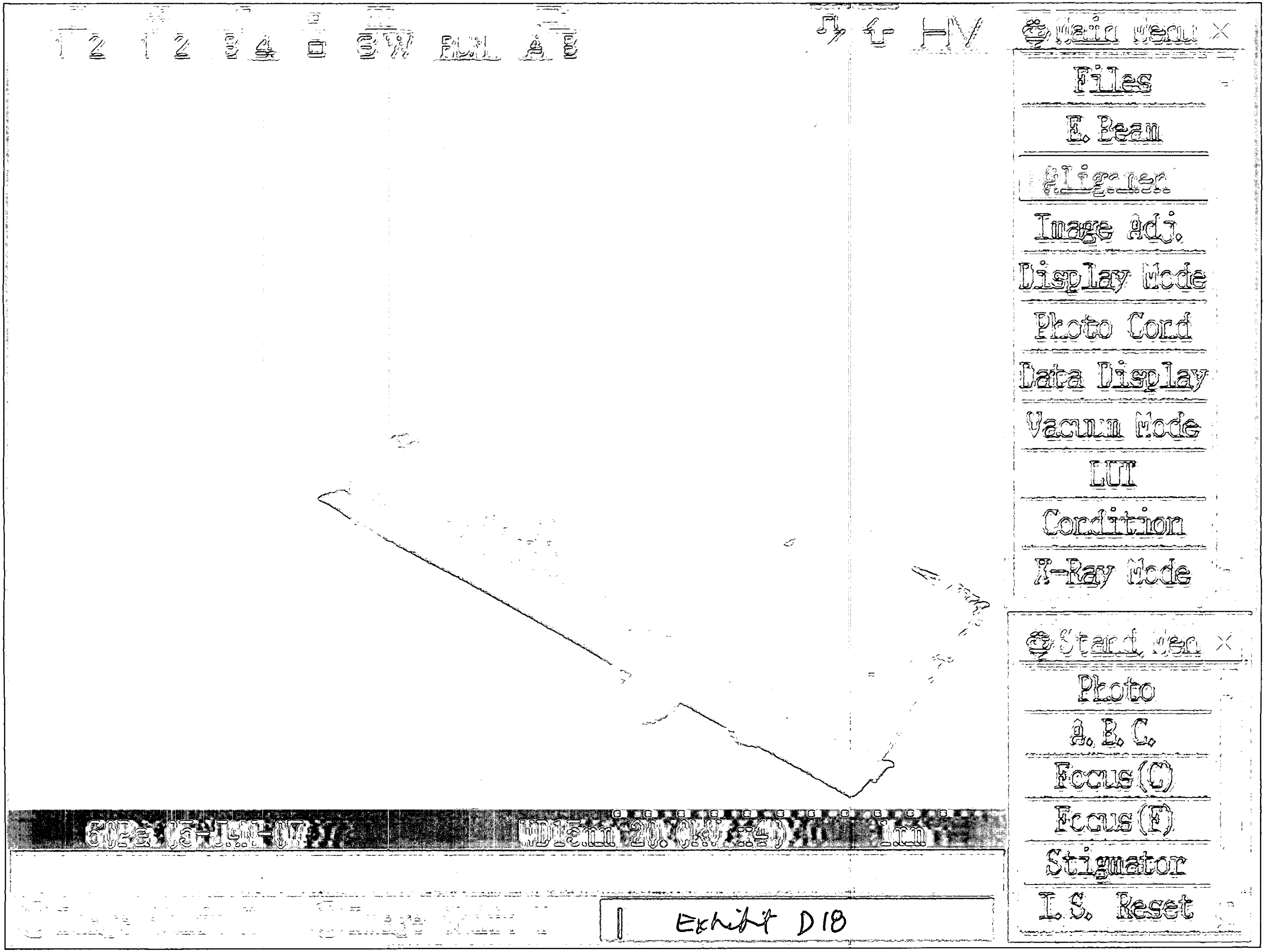

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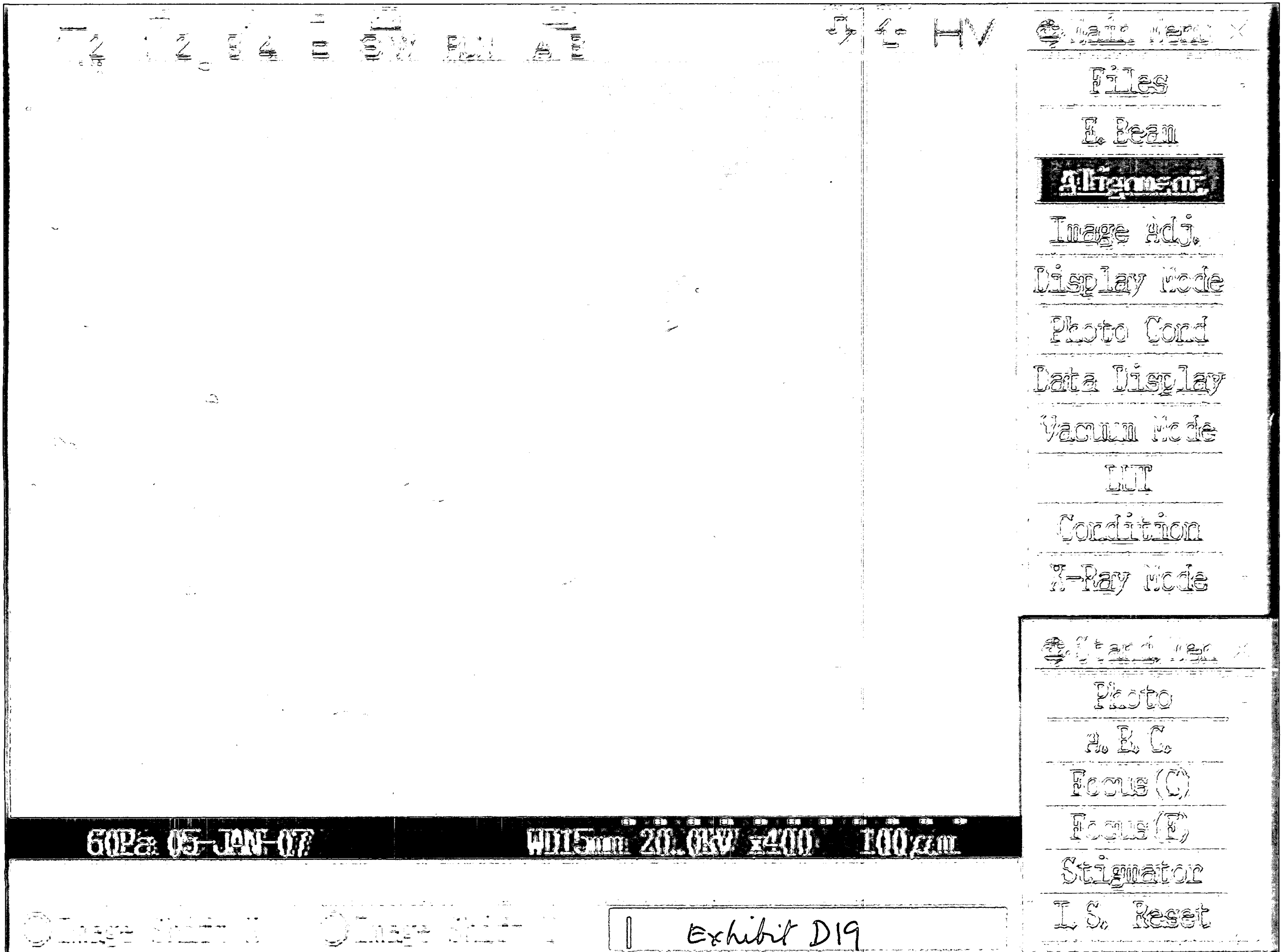
Exhibit D18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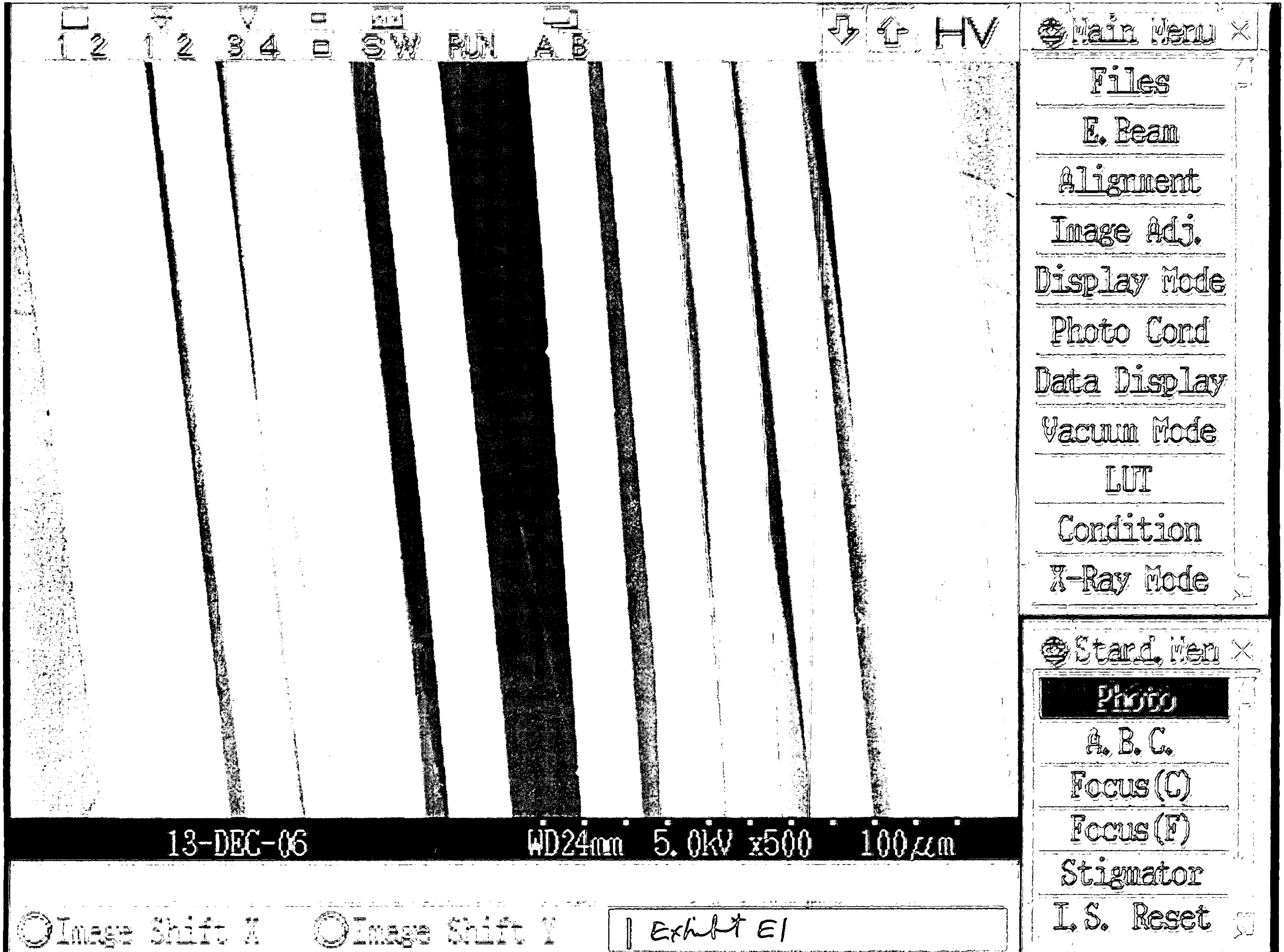
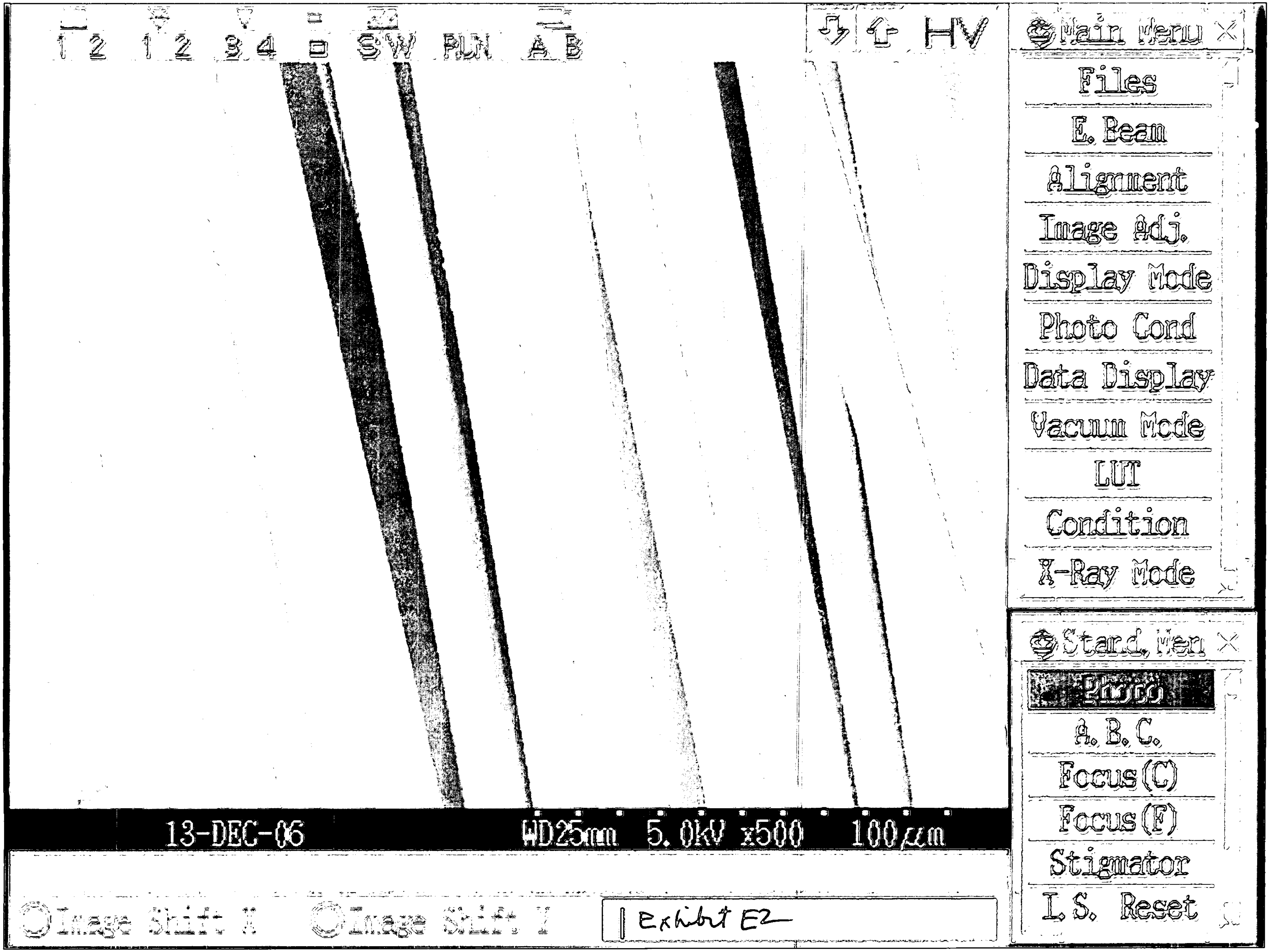
X-Ray Mode
Photo
A. B. C.
Focus(C)
Focus(F)
Stigmator
I. S. Reset
60Pa 05-JAN-07
WD15mm 20.0kV x400 100μm
Image Shift I
Image Shift

Exhibit D19


1 2 1 2 3 4 SW RUN A B
HV
Main Menu
Files
E. Beam
Alignment
Image Adj.
Display Mode
Photo Cond
Data Display
Vacuum Mode
LUT
Condition
X-Ray Mode
Stand. Men
Photo
A. B. C.
Focus(C)
Focus(F)
Stigmator
I. S. Reset
13-DEC-06
WD24mm 5.0kV x500 100μm
Image Shift X
Image Shift Y
Exhibit E1


1 2 1 2 3 4 SW FUN A B
HV
Main Menu
Files
E. Beam
Alignment
Image Adj.
Display Mode
Photo Cond
Data Display
Vacuum Mode
LUT
Condition
X-Ray Mode
Stand. Menu
Photo
A. B. C.
Focus (C)
Focus (F)
Stigmator
I. S. Reset
13-DEC-06
WD25mm 5.0kV x500 100μm
Image Shift X
Image Shift Y
Exhibit E2


1 2
1 2 3 4
S W
RUN
A B
HV
Main Menu
Files
E. Beam
Alignment
Image Adj.
Display Mode
Photo Cond
Data Display
Vacuum Mode
LUT
Condition
X-Ray Mode
Stand. Men
Photo
A. B. C.
Focus (C)
Focus (F)
Stigmator
I. S. Reset
13-DEC-06
WD25mm 5.0kV x1.0k 50µm
Image Shift X
Image Shift Y
Exhibit E3

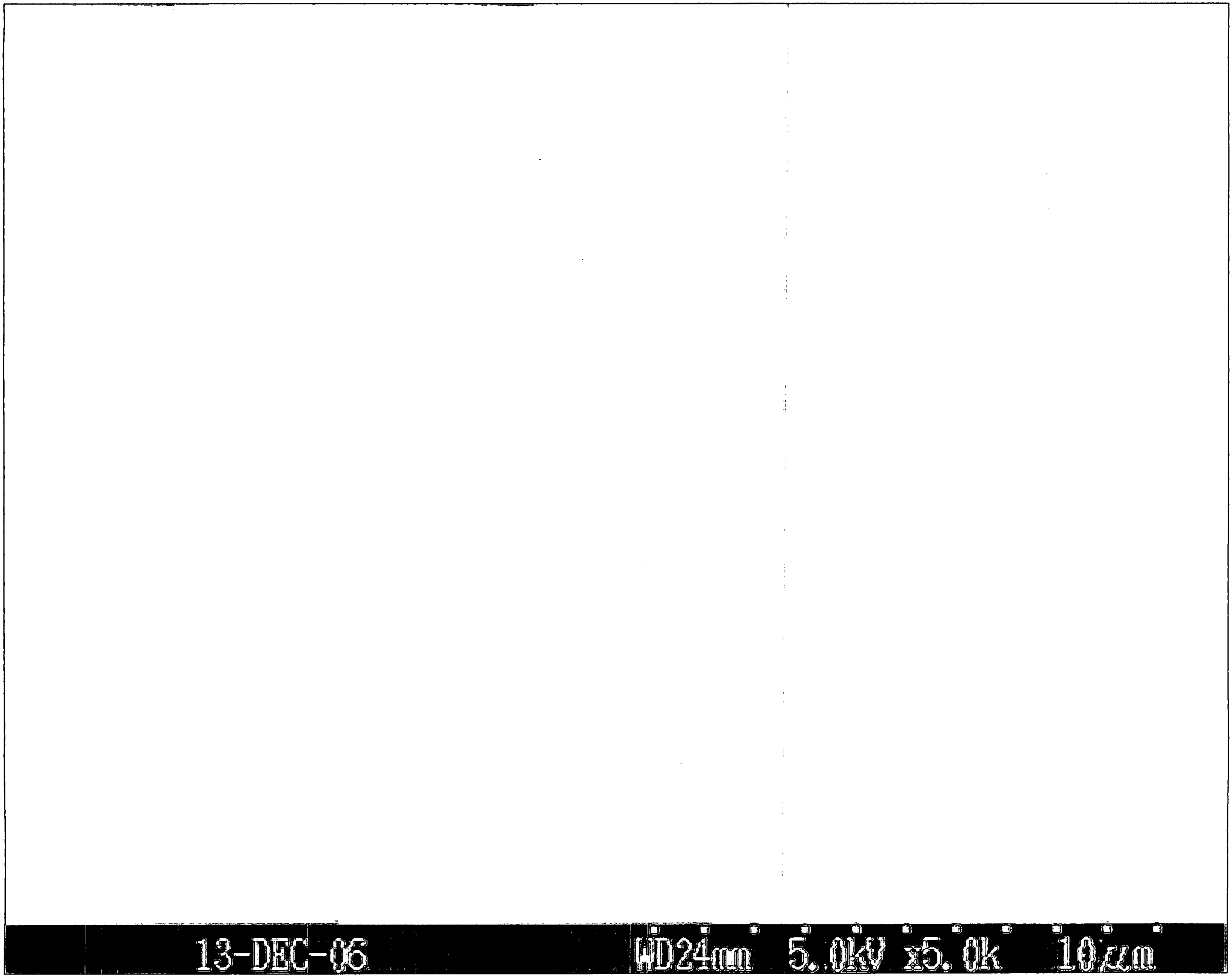
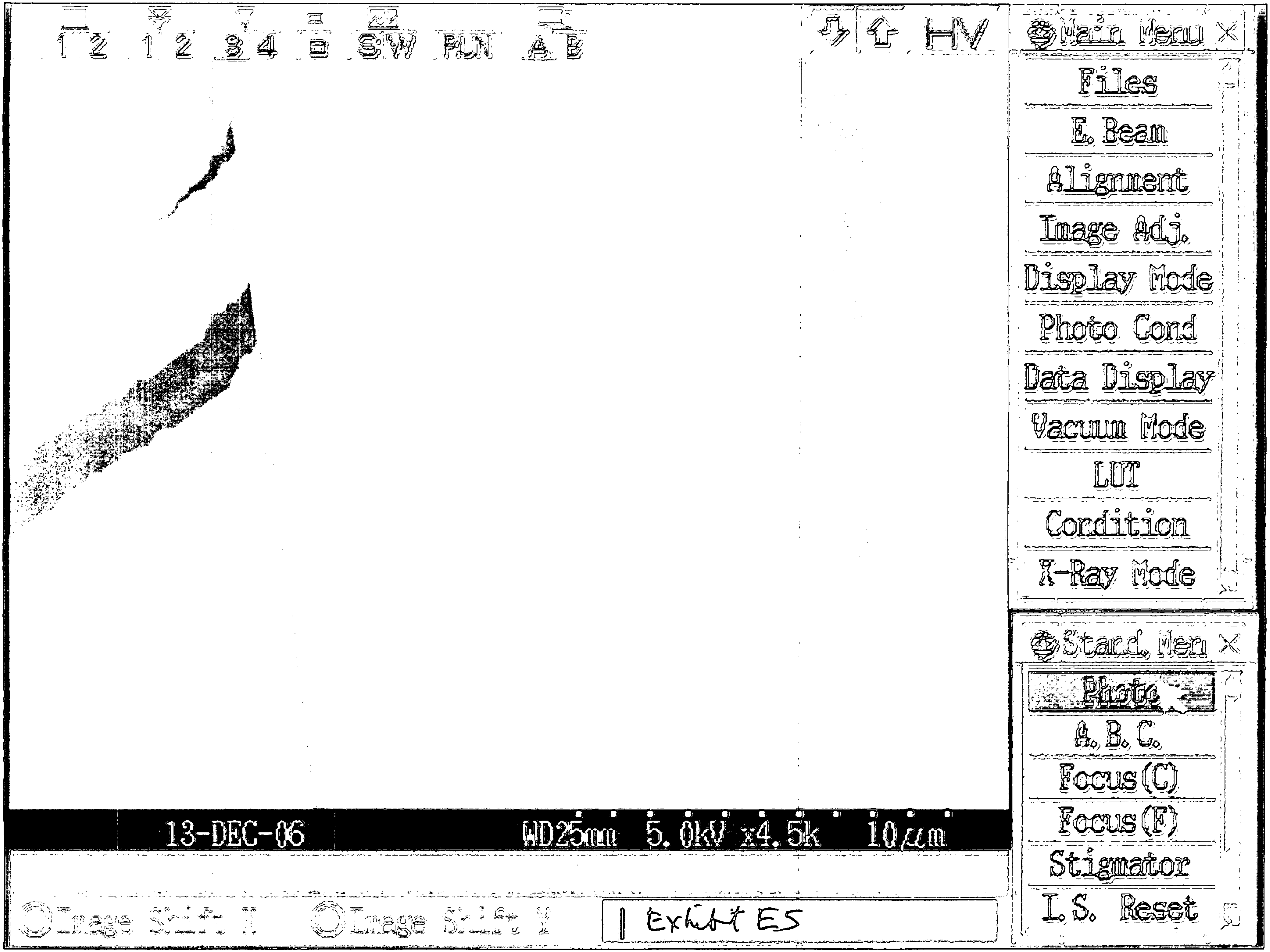
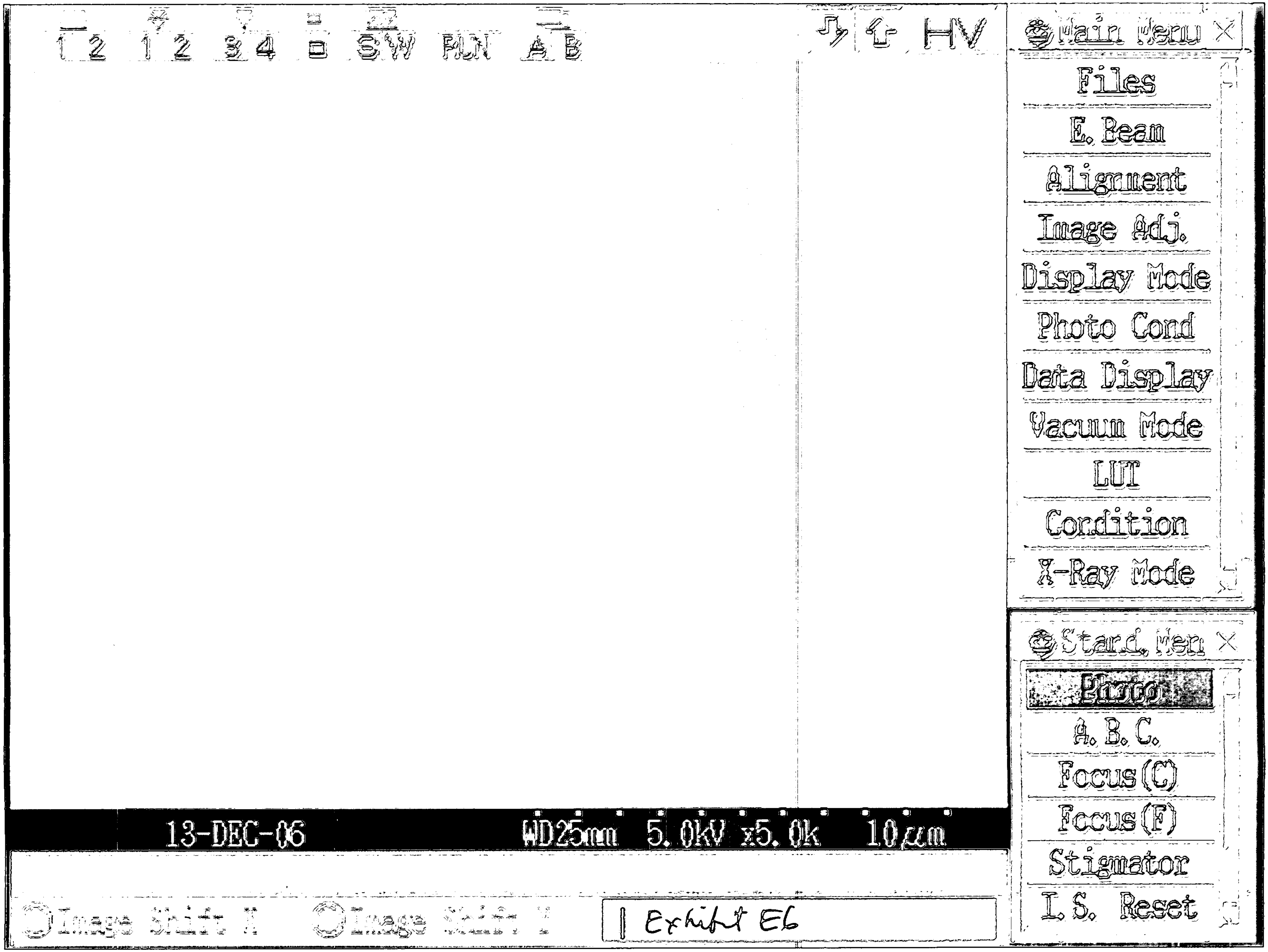
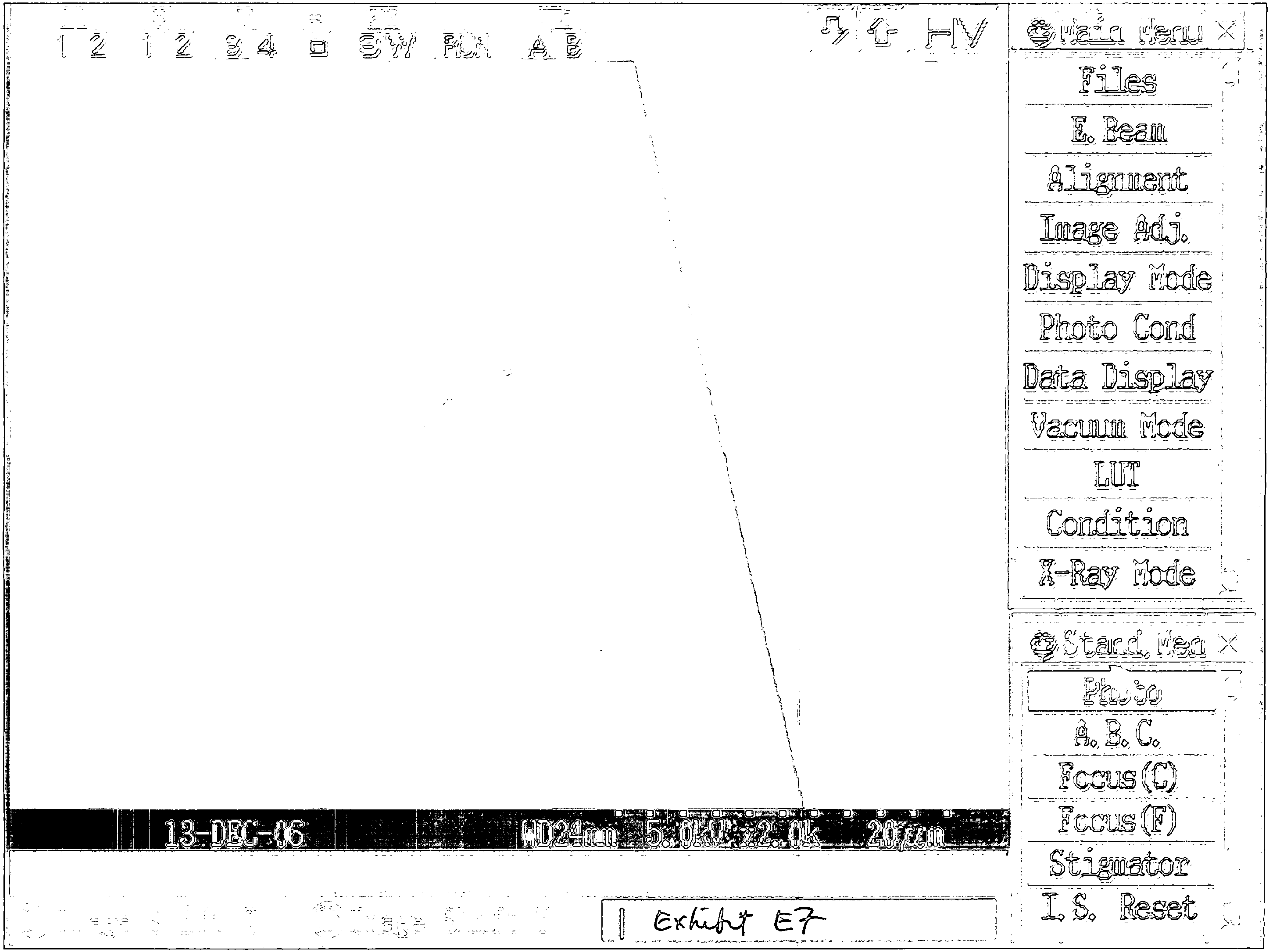


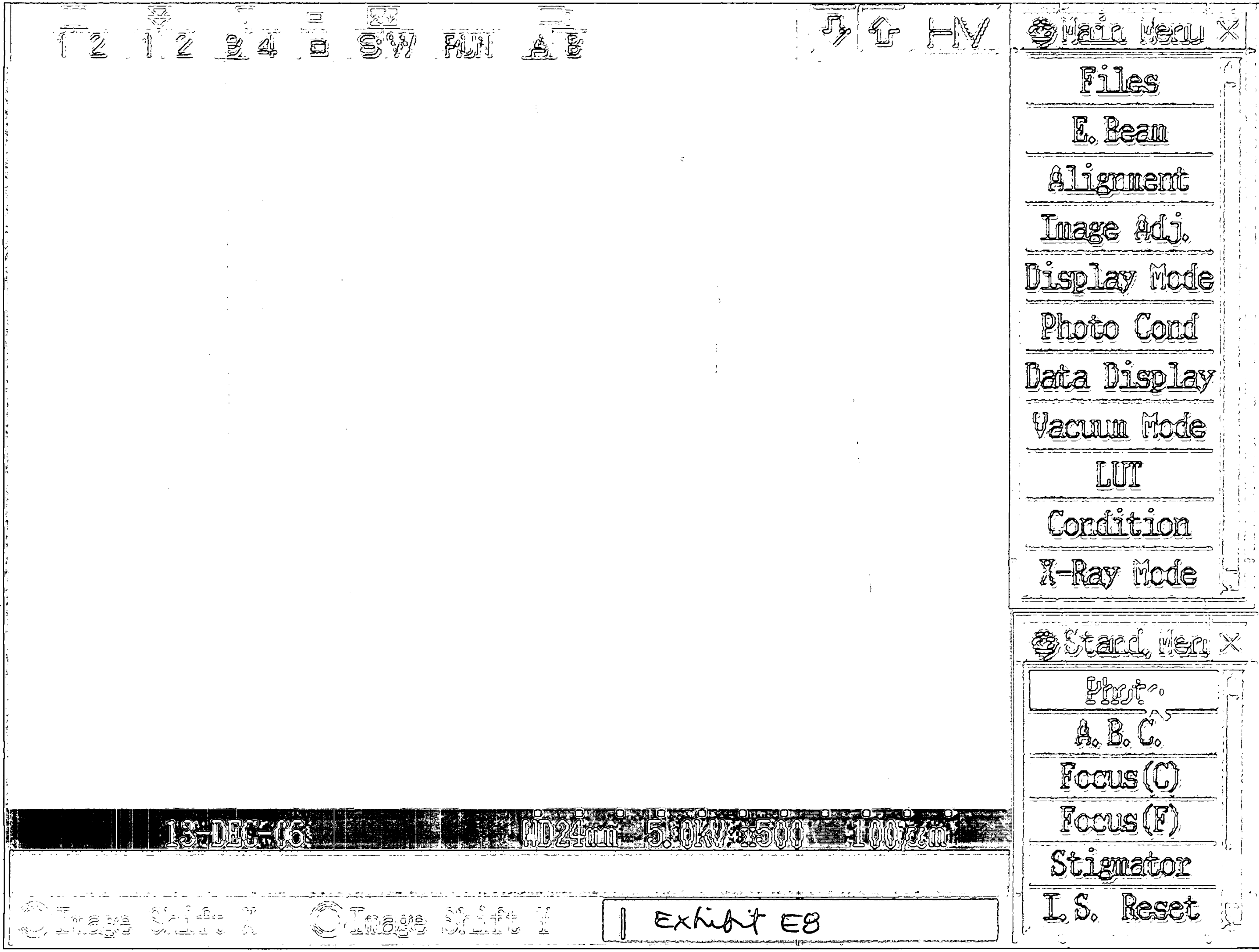
Exhibit E4

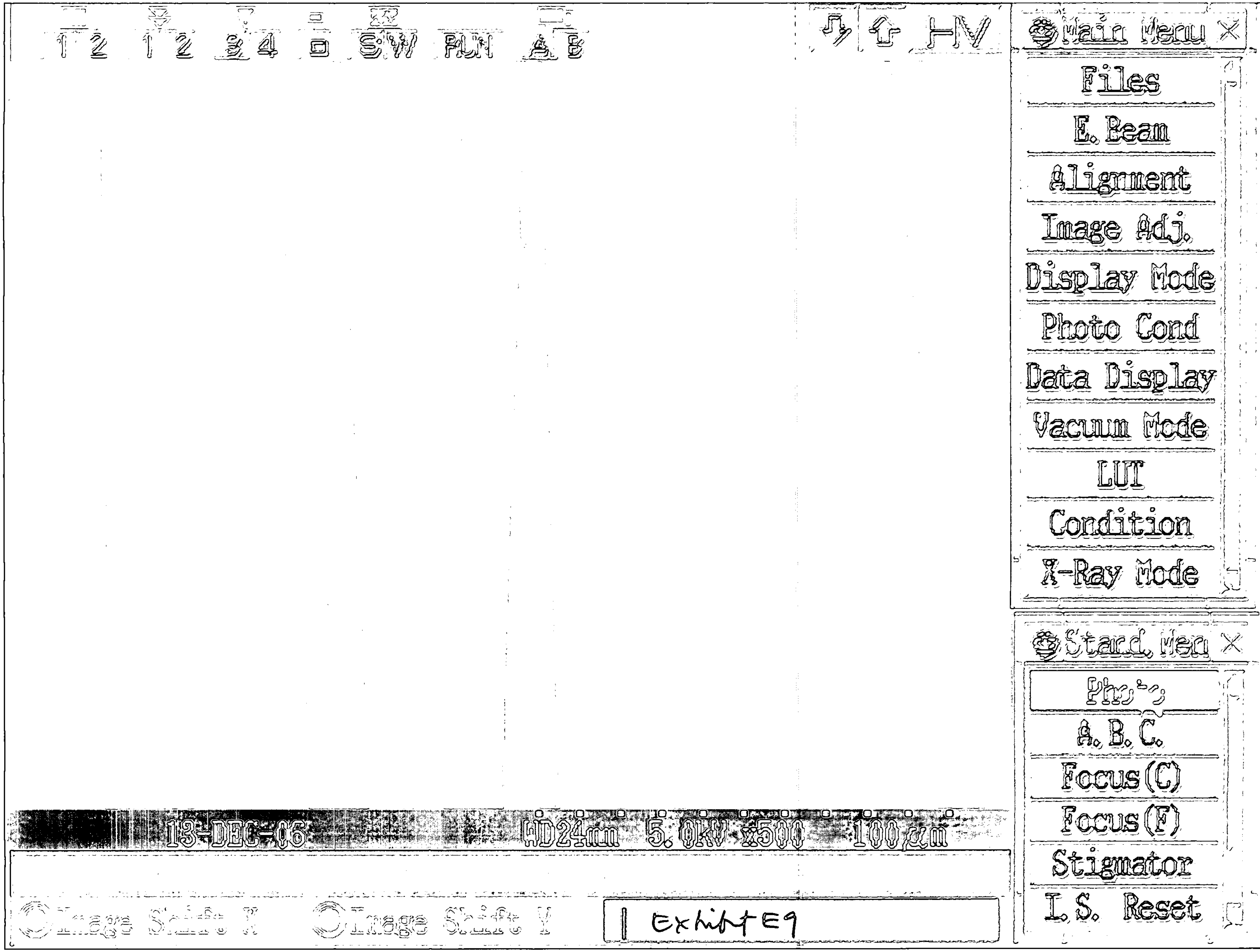

1 2 1 2 3 4 SW FLN A B
HV
Main Menu
Files
E. Beam
Alignment
Image Adj.
Display Mode
Photo Cond
Data Display
Vacuum Mode
LUT
Condition
X-Ray Mode
Stand. Menu
Photo
A. B. C.
Focus (C)
Focus (F)
Stigmator
I. S. Reset
13-DEC-06
WD25mm 5.0kV x4.5k 10μm
Image Shift X
Image Shift Y
Exhibit ES

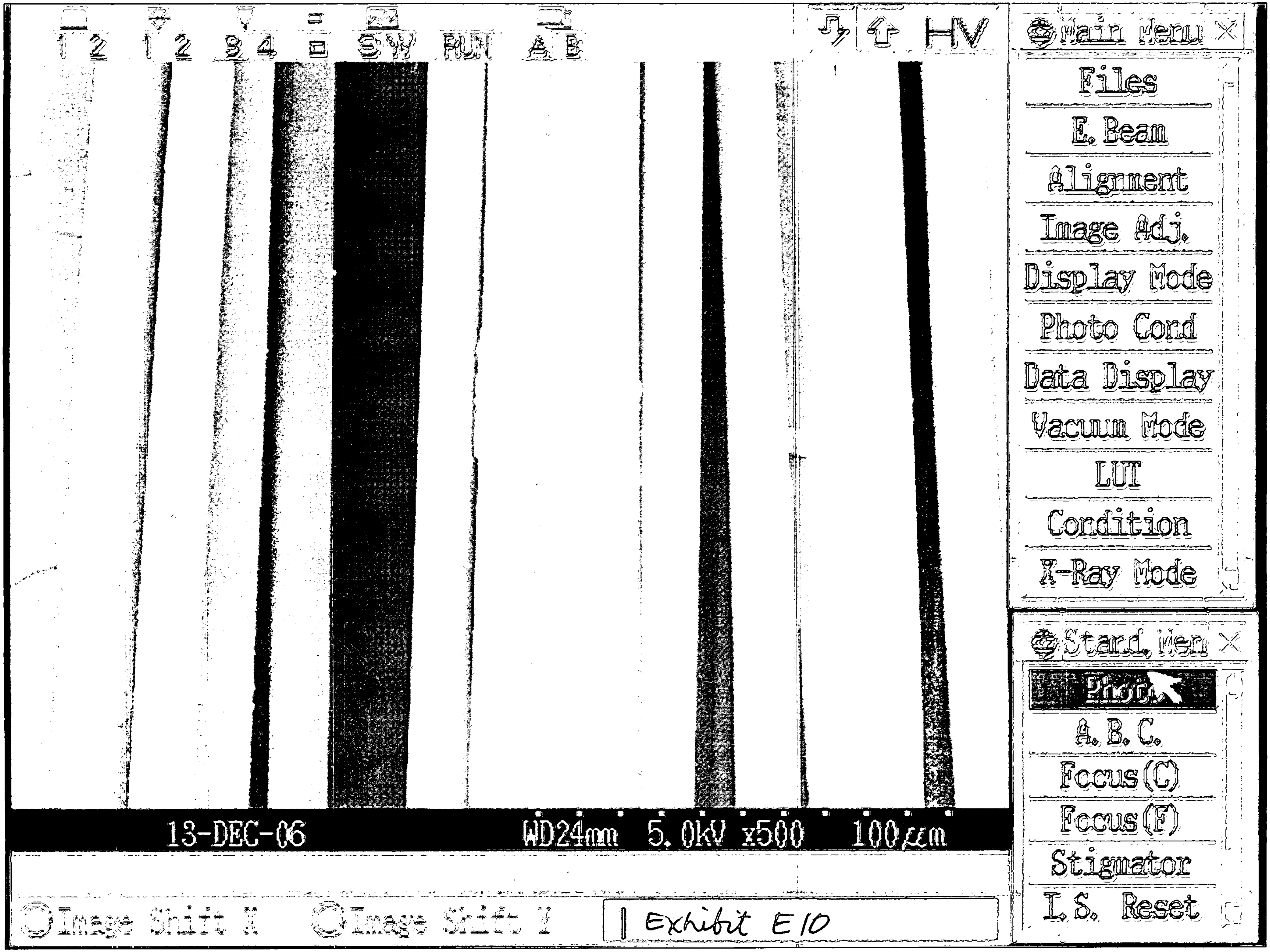

1 2 1 2 3 4 SW FLN A B
HV
Main Menu
Files
E. Beam
Alignment
Image Adj.
Display Mode
Photo Cond
Data Display
Vacuum Mode
LUT
Condition
X-Ray Mode
Stand. Menu
Photo
A. B. C.
Focus(C)
Focus(F)
Stigmator
I. S. Reset
13-DEC-06
WD25mm 5.0kV x5.0k 10μm
Image Shift X
Image Shift Y
Exhibit E6

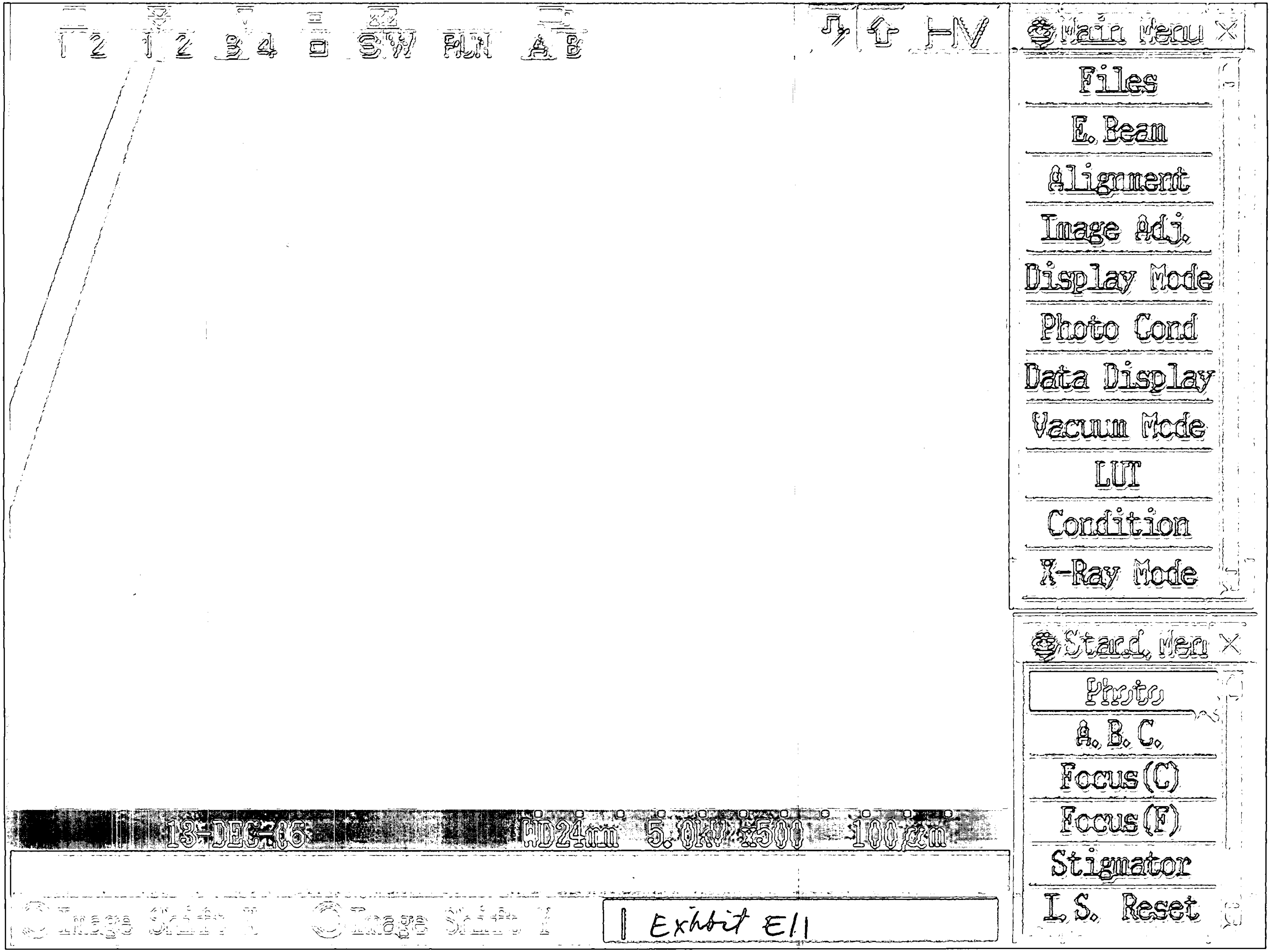


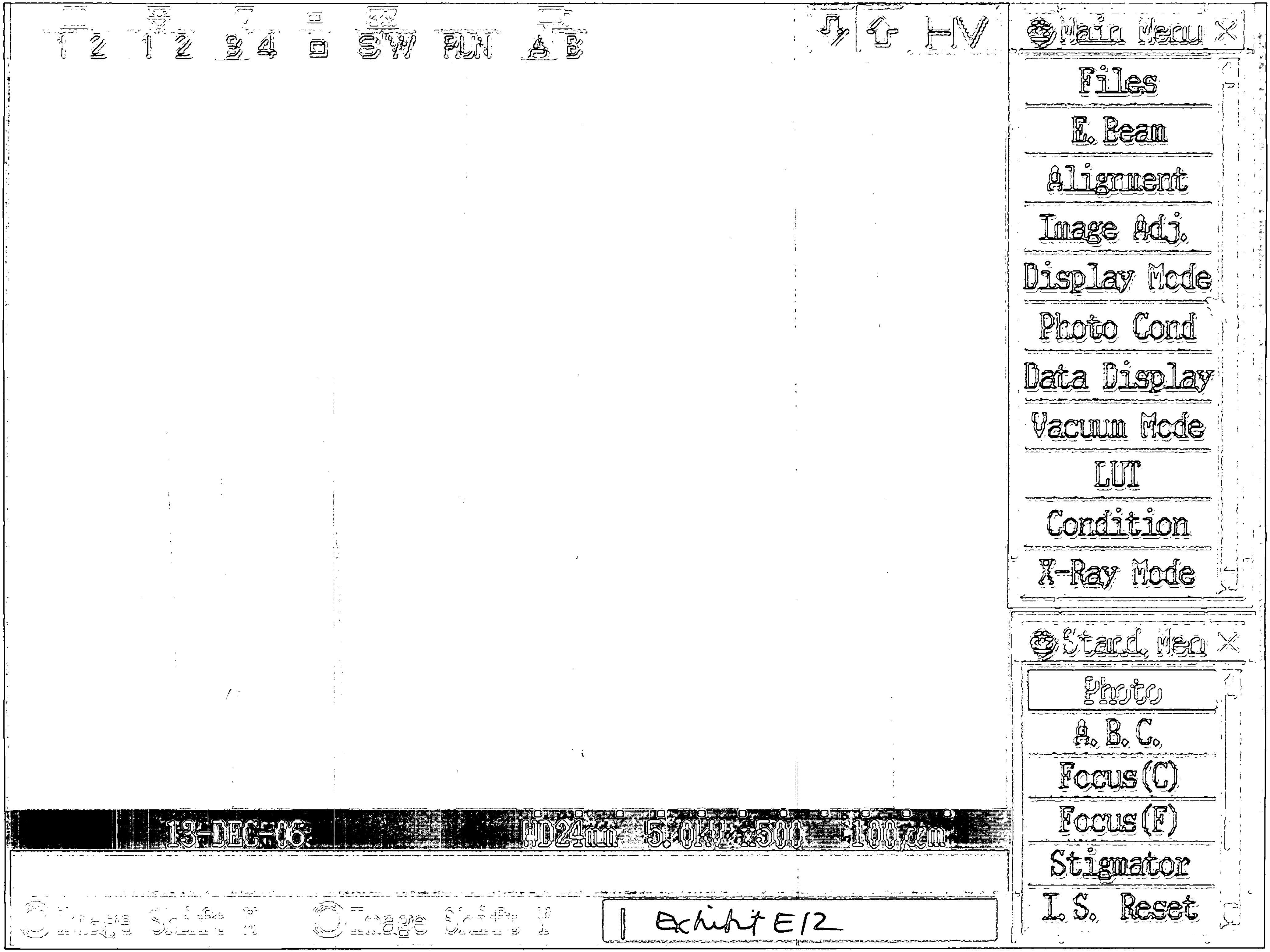
Main Menu
Files
E. Beam
Alignment
Image Adj.
Display Mode
Photo Cond
Data Display
Vacuum Mode
LUT
Condition
X-Ray Mode
Stand. Menu
A. B. C.
Focus(C)
Focus(F)
Stigmator
I. S. Reset
HV
13-DEC-06
WD24mm 5.0kV x2.0k 20μm
Exhibit E7

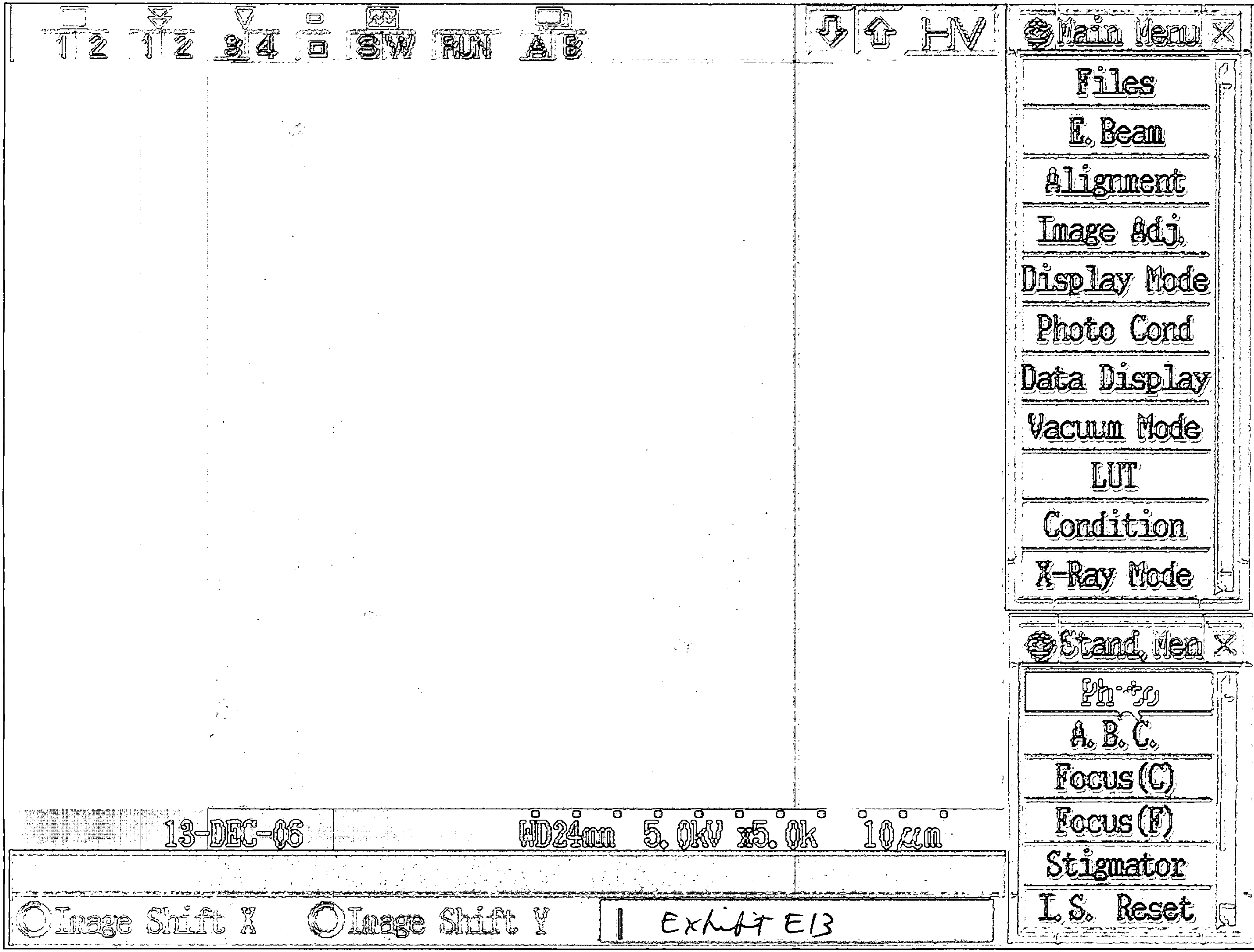

HV
Main Menu
Files
E. Beam
Alignment
Image Adj.
Display Mode
Photo Cond
Data Display
Vacuum Mode
LUT
Condition
X-Ray Mode
Stand. Menu
A. B. C.
Focus (C)
Focus (F)
Stigmator
I. S. Reset
13-DEC-06
WD24mm 5.0kV x500 100µm
Image Shift X
Image Shift Y
Exhibit E8

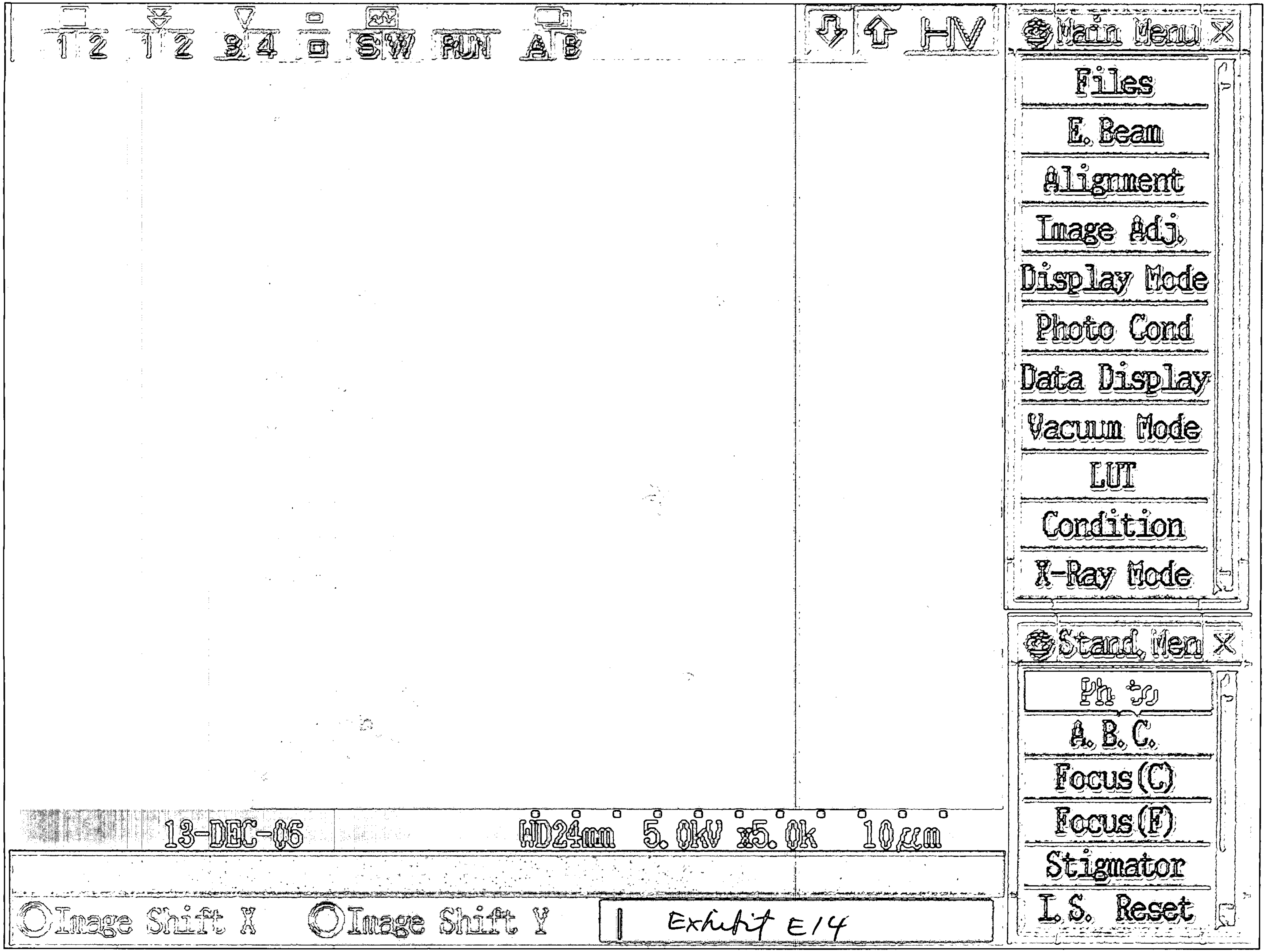

1 2
1 2
3 4
SW
FUN
A B
HV
Main Menu
Files
E. Beam
Alignment
Image Adj.
Display Mode
Photo Cond
Data Display
Vacuum Mode
LUT
Condition
X-Ray Mode
Stand. Menu
A. B. C.
Focus (C)
Focus (F)
Stigmator
I. S. Reset
13-DEC-06
WD24mm 5.0kV x500 100μm
Image Shift X
Image Shift Y
Exhibit E9

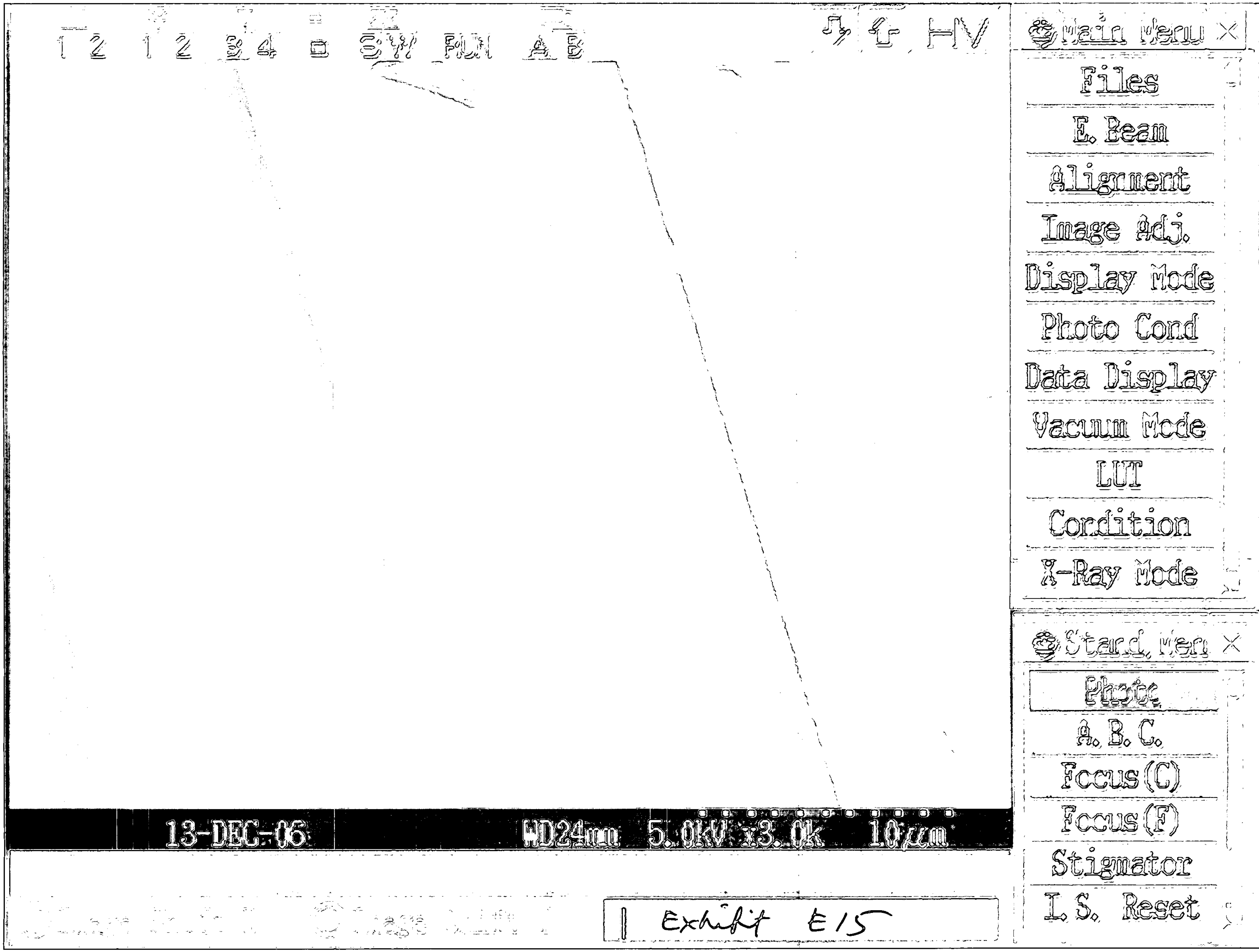

1 2 1 2 3 4 SW RUN A B HV
Main Menu
Files
E. Beam
Alignment
Image Adj.
Display Mode
Photo Cond
Data Display
Vacuum Mode
LUT
Condition
X-Ray Mode
Stand. Men
Photo
A. B. C.
Focus (C)
Focus (F)
Stigmator
I. S. Reset
13-DEC-06
WD24mm 5.0kV x500 100μm
Image Shift X
Image Shift Y
Exhibit E10


Main Menu
Files
E. Beam
Alignment
Image Adj.
Display Mode
Photo Cond
Data Display
Vacuum Mode
LUT
Condition
X-Ray Mode
Stard. Menu
Photo
A. B. C.
Focus (C)
Focus (F)
Stigmator
I. S. Reset
HV
13-DEC-06
WD24mm 5.0kV x500 100μm
Image Shift X
Image Shift Y
Exhibit E11


1 2 1 2 3 4 SW FUN A B
HV
Main Menu
Files
E. Beam
Alignment
Image Adj.
Display Mode
Photo Cond
Data Display
Vacuum Mode
LUT
Condition
X-Ray Mode
Stand. Menu
Photo
A. B. C.
Focus (C)
Focus (F)
Stigmator
I. S. Reset
13-DEC-06
WD24mm 5.0kV x500 100μm
Image Shift X
Image Shift Y
Exhibit E12


1 2
1 2
3 4
SW
RUN
A B
HV
Main Menu
Files
E. Beam
Alignment
Image Adj.
Display Mode
Photo Cond
Data Display
Vacuum Mode
LUT
Condition
X-Ray Mode
Stand. Men
A. B. C.
Focus (C)
Focus (F)
Stigmator
I. S. Reset
13-DEC-06
WD24mm 5.0kV x5.0k 10μm
Image Shift X
Image Shift Y
Exhibit E13


1 2 1 2 3 4 SW FUN A B
HV
Main Menu
Files
E. Beam
Alignment
Image Adj.
Display Mode
Photo Cond
Data Display
Vacuum Mode
LUT
Condition
X-Ray Mode
Stand. Men
A. B. C.
Focus (C)
Focus (F)
Stigmator
I.S. Reset
13-DEC-06
WD24mm 5.0kV x5.0k 10μm
Image Shift X
Image Shift Y
Exhibit E14


1 2 1 2 3 4
SW FUN A B
HV
Main Menu
Files
E. Beam
Alignment
Image Adj.
Display Mode
Photo Cond
Data Display
Vacuum Mode
LUT
Condition
X-Ray Mode
Stand. Menu
Photo
A. B. C.
Focus (C)
Focus (F)
Stigmator
I. S. Reset
13-DEC-06
WD24mm 5.0kV x3.0k 10μm
Exhibit E15

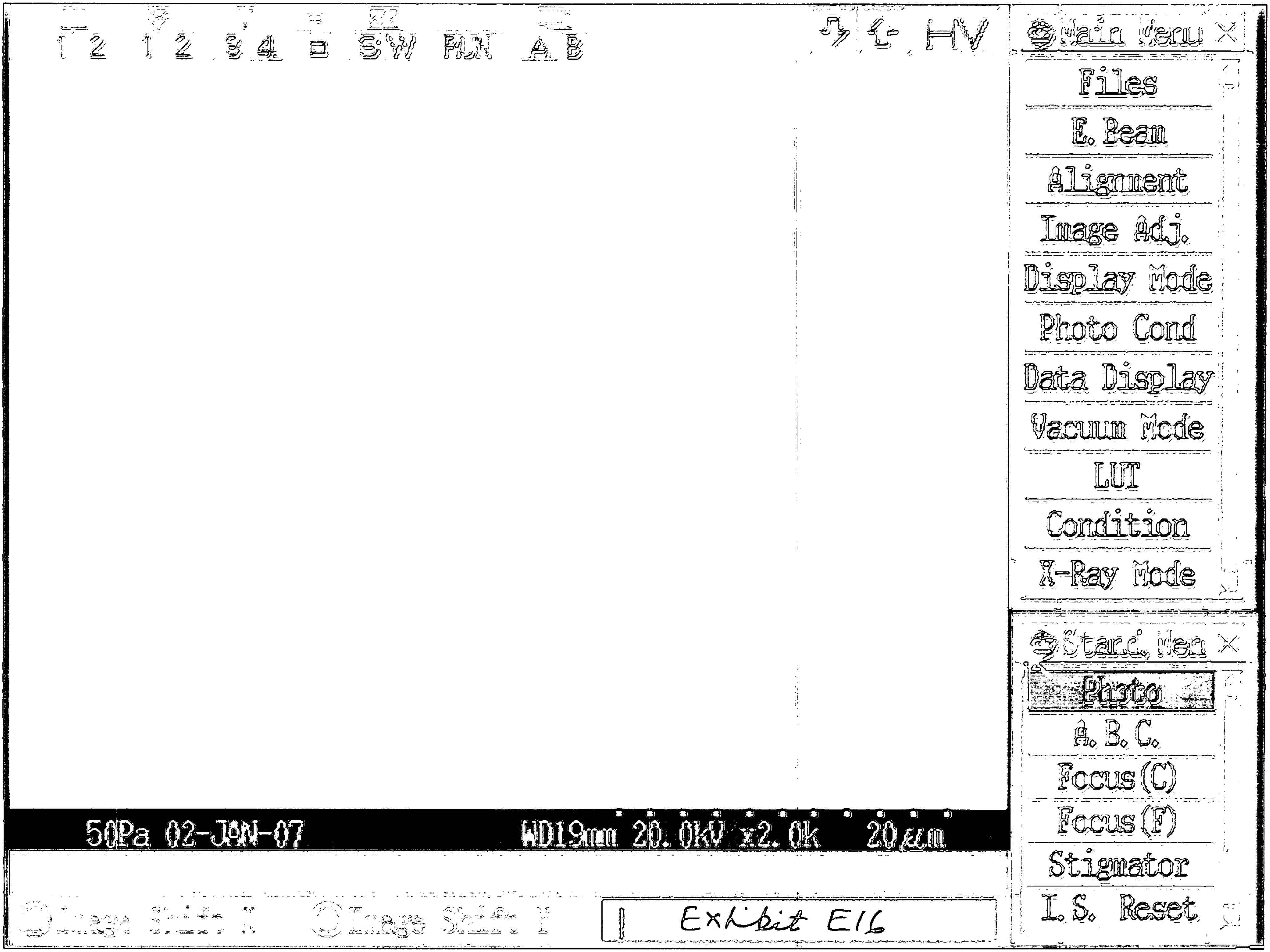

1 2 1 2 3 4 SW FLN A B
HV
Main Menu
Files
E. Beam
Alignment
Image Adj.
Display Mode
Photo Cond
Data Display
Vacuum Mode
LUT
Condition
X-Ray Mode
Stand. Men
Photo
A. B. C.
Focus (C)
Focus (F)
Stigmator
I. S. Reset
50Pa 02-JAN-07
WD19mm 20.0kV x2.0k 20µm
Image Shift X
Image Shift Y

Exhibit E16

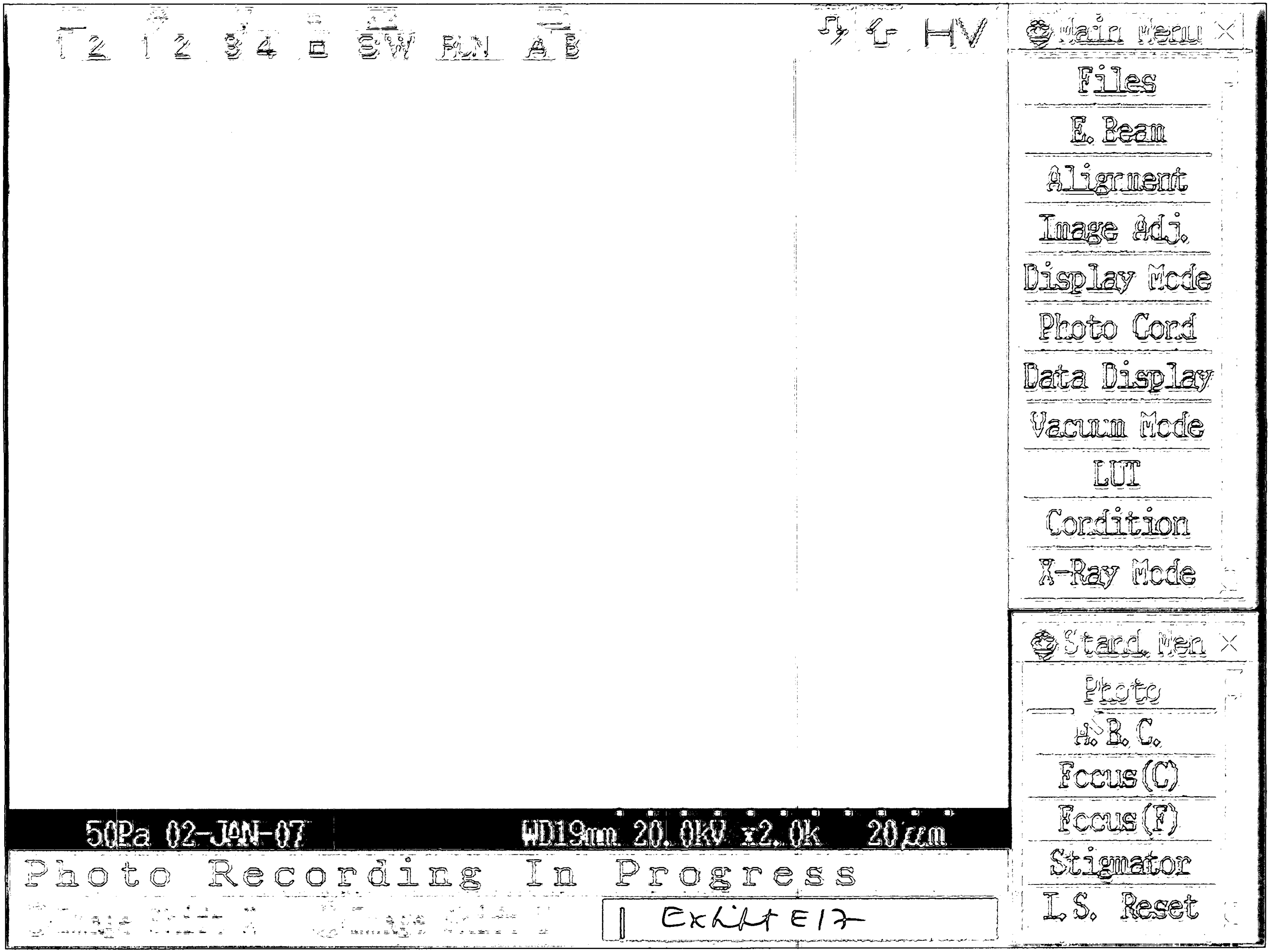

HV
Main Menu
Files
E. Beam
Alignment
Image Adj.
Display Mode
Photo Cond
Data Display
Vacuum Mode
LUT
Condition
X-Ray Mode
Stand. Men
Photo
A. B. C.
Focus (C)
Focus (F)
Stigmator
I. S. Reset
50Pa 02-JAN-07
WD19mm 20.0kV x2.0k 20µm
Photo Recording In Progress

Exhibit E17

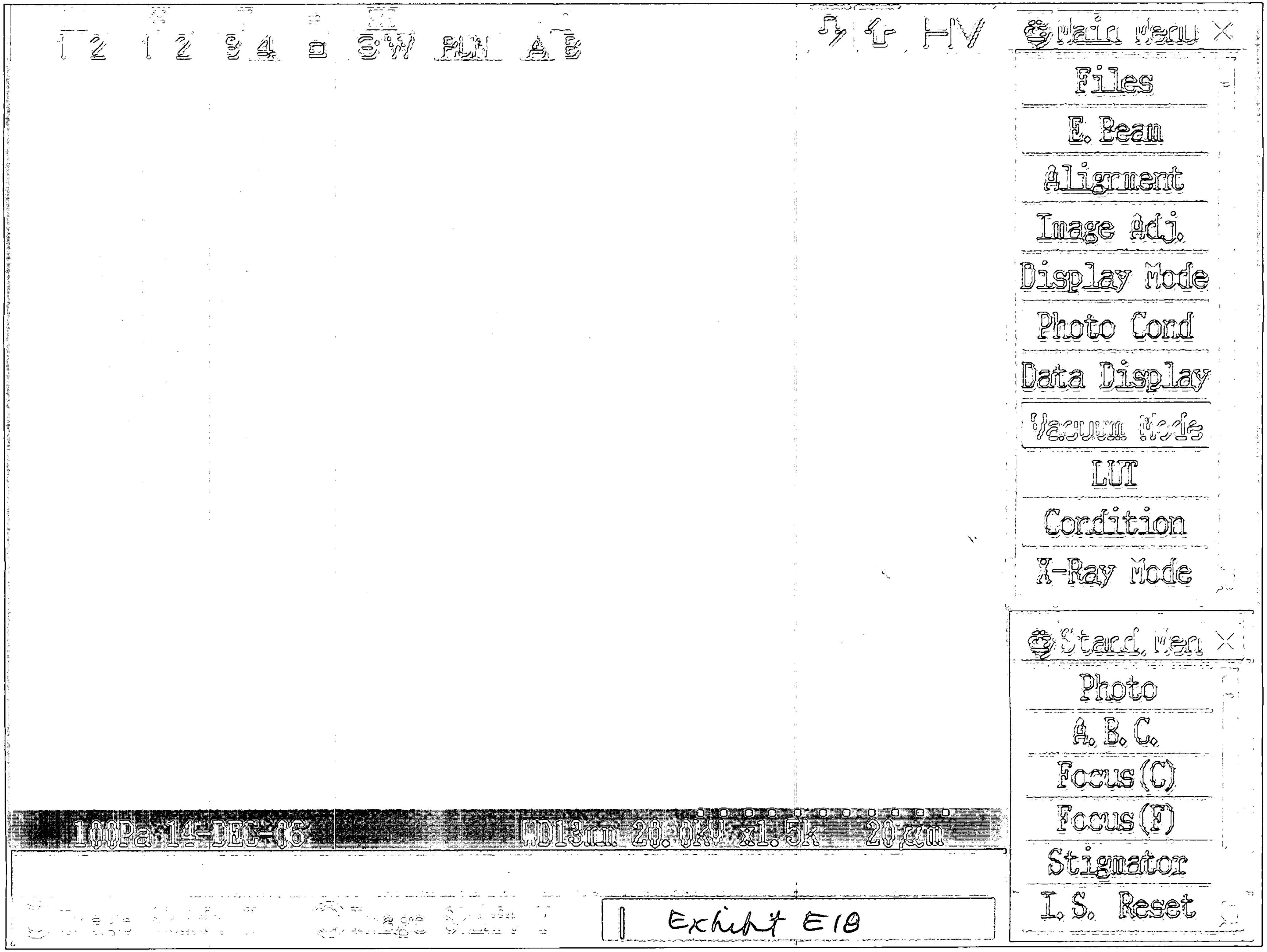
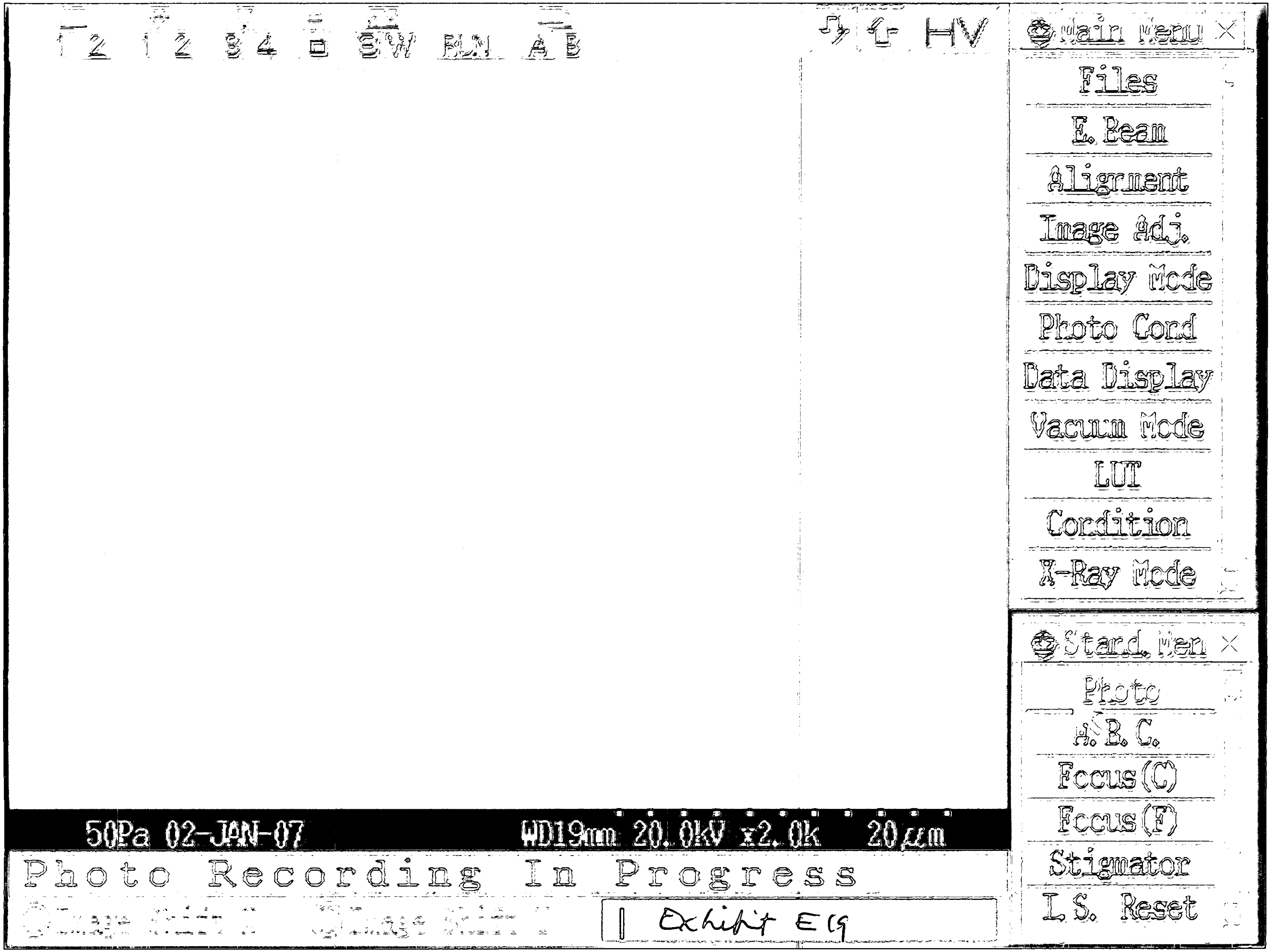
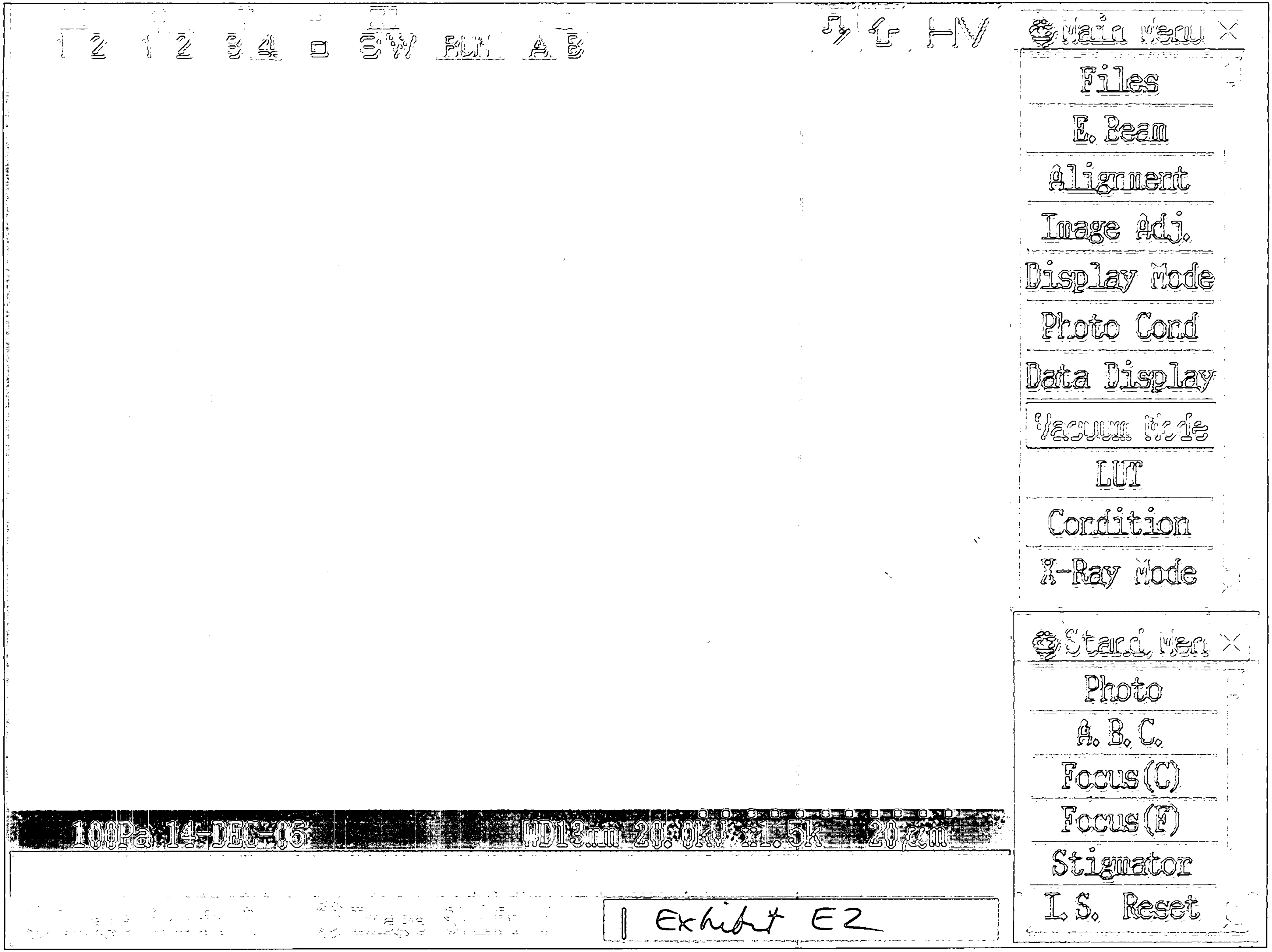
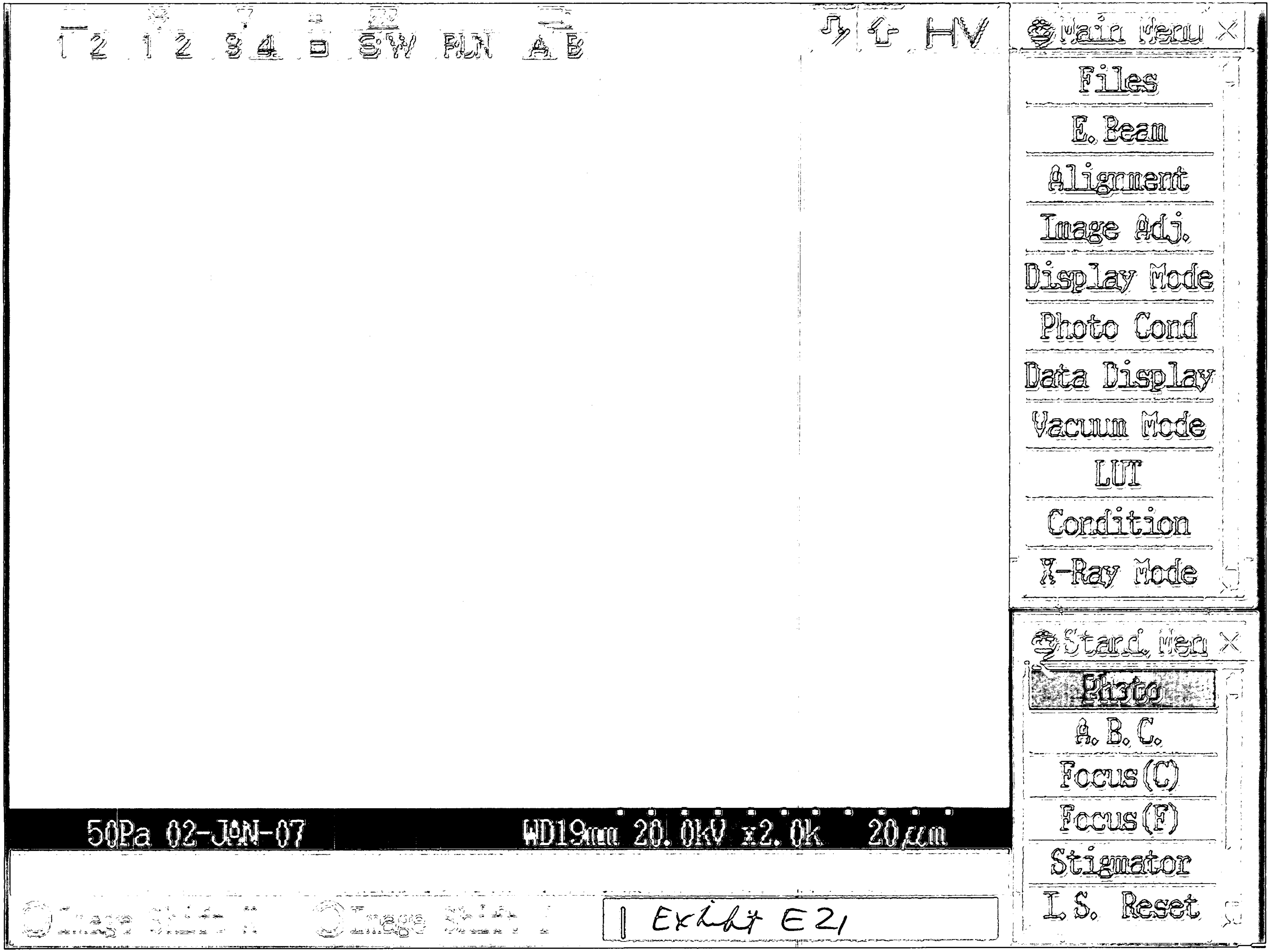
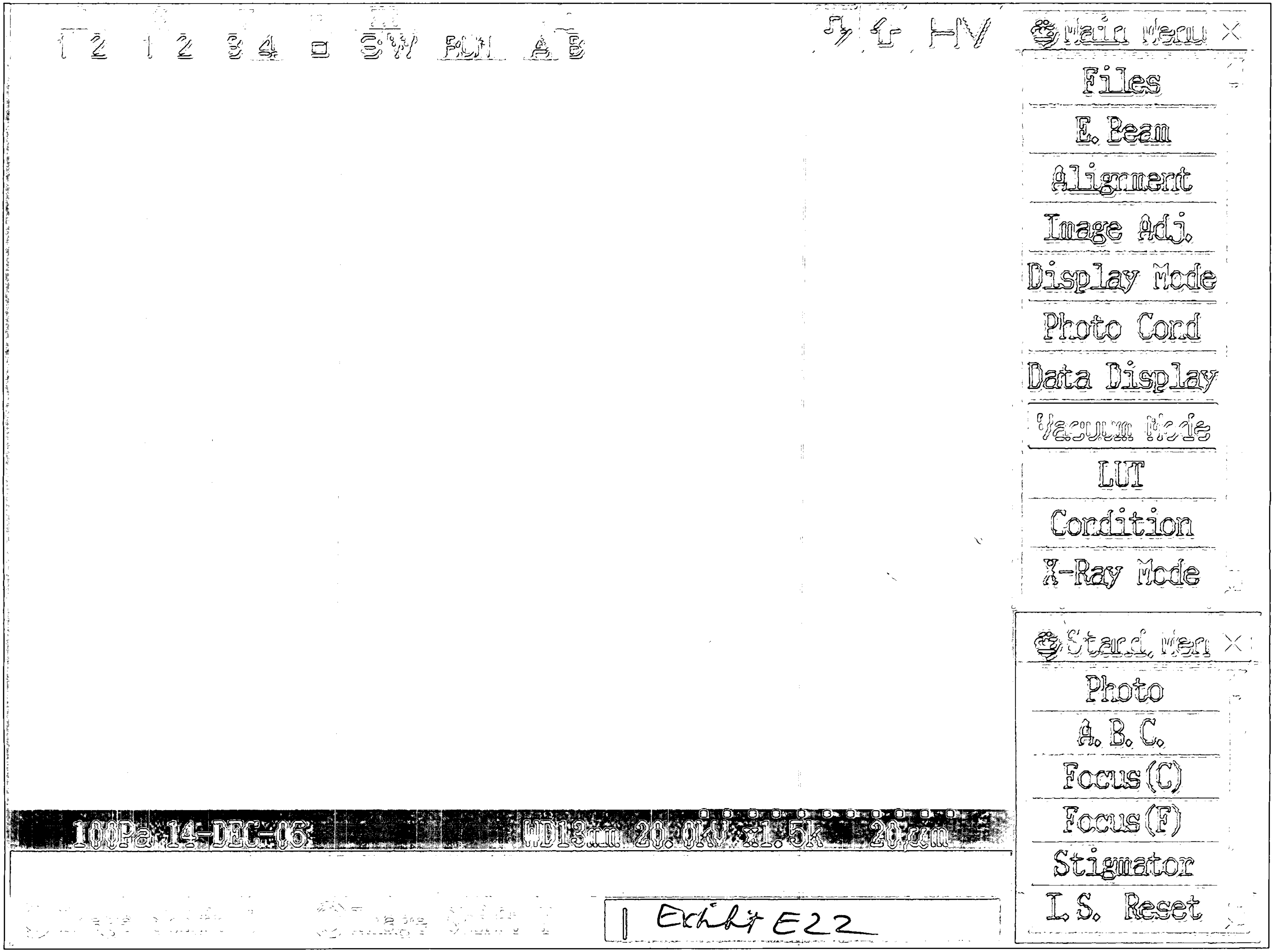

Main Menu
Files
E. Beam
Alignment
Image Adj.
Display Mode
Photo Cond
Data Display
Vacuum Mode
LUT
Condition
X-Ray Mode
Stard. Menu
Photo
A. B. C.
Focus(C)
Focus(F)
Stigmator
I. S. Reset
HV
100Pa 14-DEC-06
WD13mm 20.0kV x1.5k 20µm

Exhibit E10


HV
Main Menu
Files
E. Beam
Alignment
Image Adj.
Display Mode
Photo Cond
Data Display
Vacuum Mode
LUT
Condition
X-Ray Mode
Stand. Men
Photo
A. B. C.
Focus(C)
Focus(F)
Stigmator
L.S. Reset
50Pa 02-JAN-07
WD19mm 20.0kV x2.0k 20μm
Photo Recording In Progress
Exhibit E19


HV
Main Menu
Files
E. Beam
Alignment
Image Adj.
Display Mode
Photo Cond
Data Display
Vacuum Mode
LUT
Condition
X-Ray Mode
Stand. Menu
Photo
A. B. C.
Focus(C)
Focus(F)
Stigmator
I. S. Reset
100Pa 14-DEC-05
WD13mm 20.0kV x1.5k 20 µm
Exhibit E2


1 2 1 2 3 4 D SW FLN A B
HV
Main Menu
Files
E. Beam
Alignment
Image Adj.
Display Mode
Photo Cond
Data Display
Vacuum Mode
LUT
Condition
X-Ray Mode
Stand. Menu
Photo
A. B. C.
Focus (C)
Focus (F)
Stigmator
I. S. Reset
50Pa 02-JAN-07
WD19mm 20.0kV x2.0k 20 μm
Image Shift X
Image Shift Y
Exhibit E21


1 2 1 2 3 4 SW FCH A B
HV
Main Menu
Files
E. Beam
Alignment
Image Adj.
Display Mode
Photo Cond
Data Display
Vacuum Mode
LUT
Condition
X-Ray Mode
Stand. Menu
Photo
A. B. C.
Focus(C)
Focus(F)
Stigmator
I. S. Reset
100Pa 14-DEC-06 WD13mm 20.0kV x1.5k 20μm
Exhibit E22

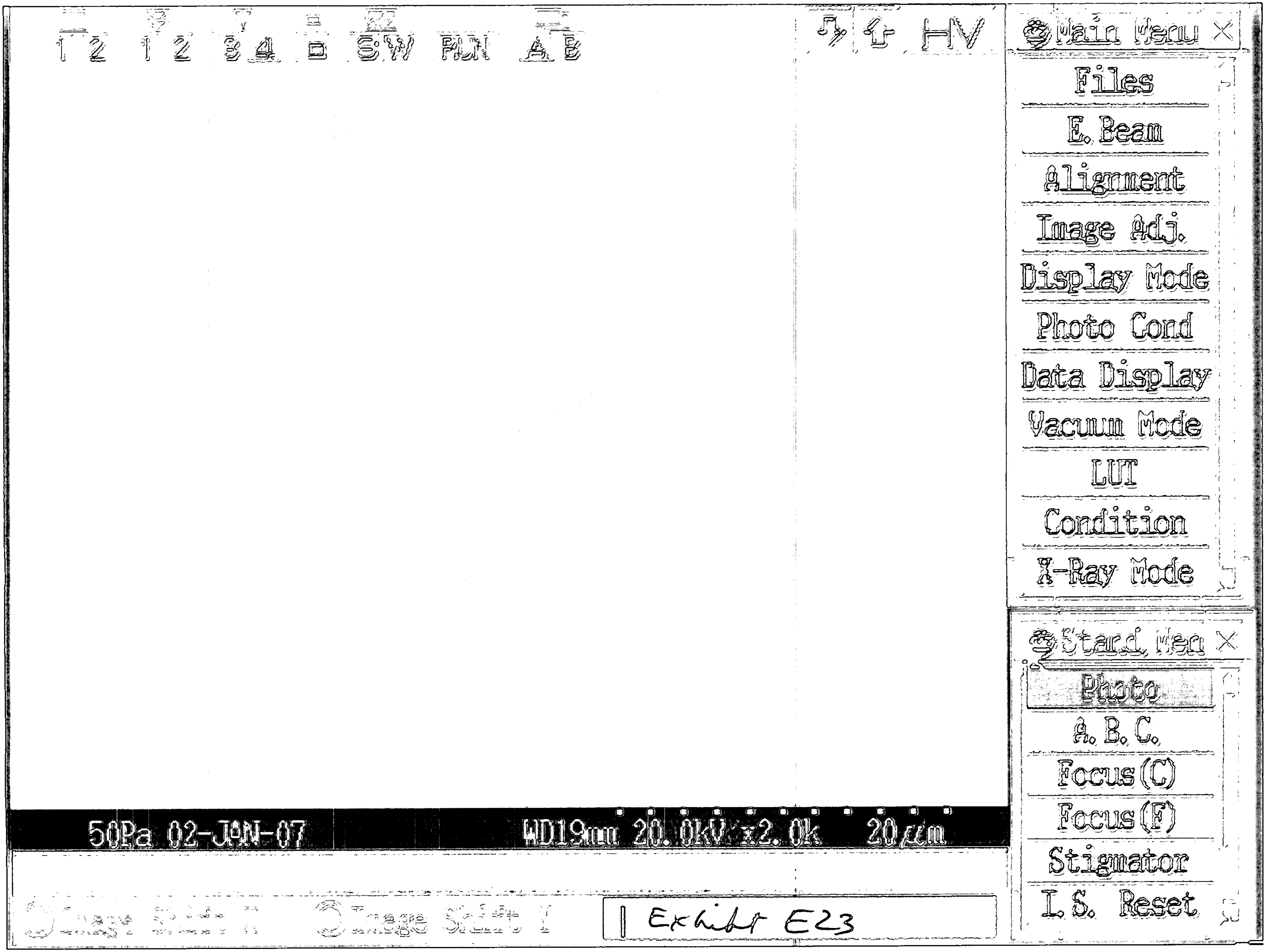
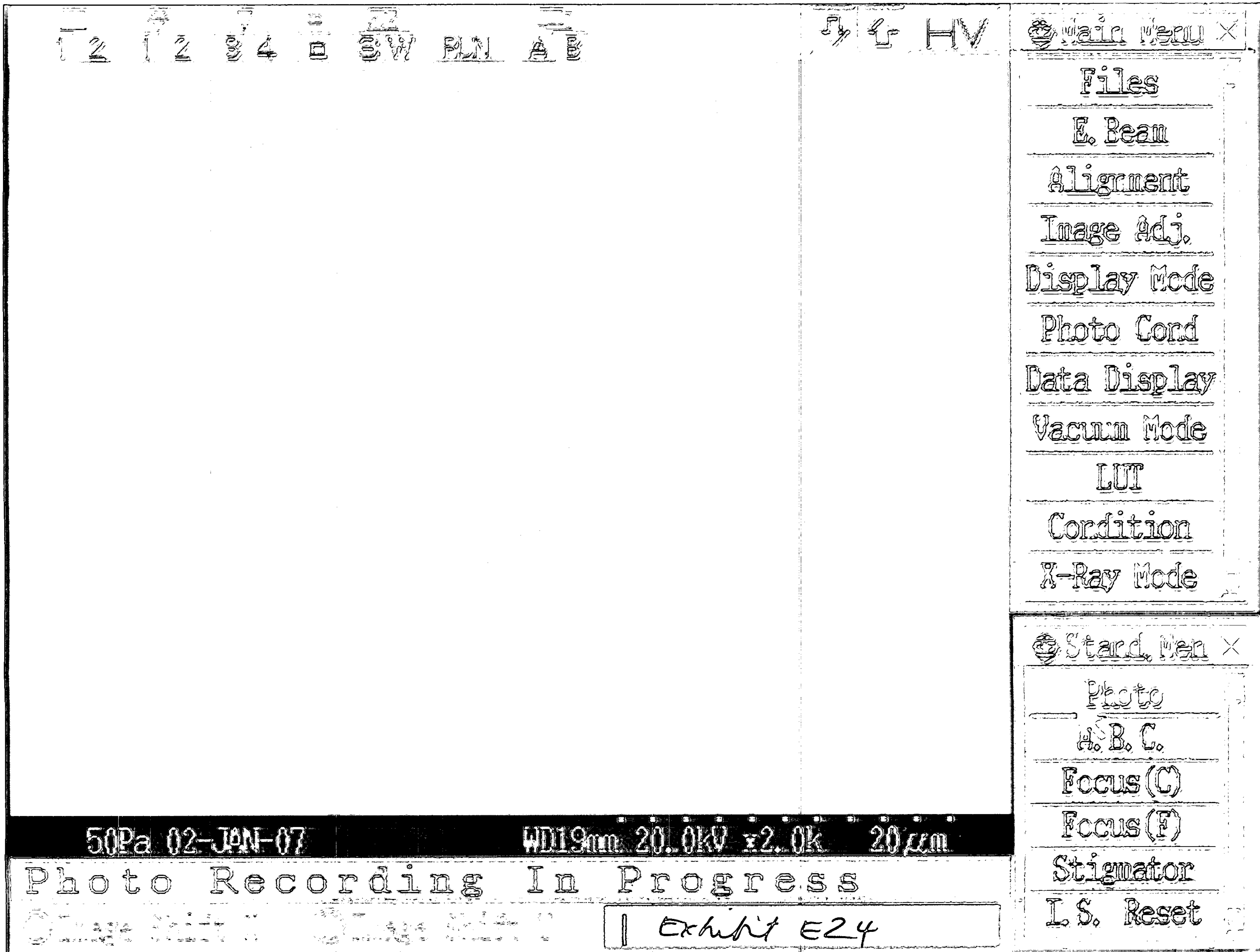

1 2 1 2 3 4 D SW FLN A B
HV
Main Menu
Files
E. Beam
Alignment
Image Adj.
Display Mode
Photo Cond
Data Display
Vacuum Mode
LUT
Condition
X-Ray Mode
Stand. Menu
Photo
A. B. C.
Focus (C)
Focus (F)
Stigmator
I. S. Reset
50Pa 02-JAN-07
WD19mm 20.0kV x2.0k 20µm
Image Shift X
Image Shift Y

Exhibit E23


HV
Main Menu
Files
E. Beam
Alignment
Image Adj.
Display Mode
Photo Cond
Data Display
Vacuum Mode
LUT
Condition
X-Ray Mode
Stand. Men
Photo
A.B.C.
Focus(C)
Focus(F)
Stigmator
I.S. Reset
50Pa 02-JAN-07
WD19mm 20.0kV x2.0k 20μm
Photo Recording In Progress
Exhibit E24